

# The Manitoba Medical Review

Vol. 30

MARCH, 1950

No. 3

## S U R G E R Y

Edited by S. S. Peikoff, M.D.

### The Rationale of Fluids in Surgery

John A. Hillsman, M.D., Ch.M.

There is little doubt that the early environment of the human creature was water. This environment has in no sense changed. This creature of water has been given a keratin capsule that it may move about freely. Within this water sack it has been endowed with complex and automatic adjustment mechanisms creating a wide margin of safety in its fluid balance. To further protect this margin of safety, excretory valves have been added. In health, this creature of water whispers gently but insistently of its fluid needs. In pathological states, it shouts its demands. If given the correct kinds of fluid in adequate quantities it will distribute the fluid where needed and automatically adjust its balances. Within reasonable limits it can adjust for both the deficiencies of the timid and the excesses of the enthusiast.

All margins of safety have their limitations, however. Without proper co-operation on the part of the surgeon, the great margin of safety enjoyed by the human organism can be reduced or stretched beyond limits compatible with life. It is proposed in this paper to discuss the rationale of fluid therapy in the surgical patient. Since the vast majority of surgical patients have relatively normal cardio-renal mechanisms, it is proposed to confine our studies to this type of case. The rationale of fluid therapy in cardiac and renal disease is too complex a study for a paper of this length.

Water in the human being is located in two broad areas of distribution. The water within the actual cell structure is termed the "intracellular water." The water lying outside of the cell structure is termed the "extracellular water." The extracellular water is in turn divided into the water lying between the body cells and the vascular field, and that lying within the vascular system. The former is termed the "interstitial water" and the latter the "vascular water." Not only is the volume of the body water of interest to our study, but the actual distribution of fluid between the two broad fields is also of vital importance.

The fluid within the cellular structures is concerned chiefly with cell metabolism. It will give up water to maintain the physical volume of the circulating fluid only with extreme reluctance. Its chief salt is potassium phosphate. Its colloidal content exceeds that of the extracellular fluid. The cell membrane is endowed with a selective per-

meability. It is freely permeable to the water molecule but resists the passage of the molecule of both potassium phosphate and sodium chloride.

The fluid within the vascular field maintains the blood pressure aided by the force of the heart thrust and the tone of the arterial wall. It receives essentials from the outside world to supply the needs of the body cells and carries the refuse of the cell metabolism to the points of excretion. Its chief salt is sodium chloride. Its colloidal content exceeds that of the interstitial fluid but is slightly lower than that of the intracellular fluid. The capillary membrane is freely permeable to both water and sodium chloride.

The interstitial fluid acts in liaison between the vascular and intracellular fluid. It has been likened to a swamp, rising in times of flood and falling in times of drought. Its chief salt is sodium chloride in identical solution with that of the vascular fluid. It differs from the vascular fluid only in its colloidal content. Its colloidal content is lower than that of vascular fluid and is to a much greater degree lower than the colloidal content of the intracellular fluid.

The distribution of water within the body is controlled by osmotic forces. To properly understand what is meant by the osmotic pressure of a solution it is necessary to review Boyle's Law of Gases. This law states that the pressure exerted by a gas varies inversely with its volume. In other words, the pressure depends upon the kinetic activity of the gas molecules and so the less space in which a gas is confined the greater the pressure. One only has to pump up an automobile tire to demonstrate this fact. Due to the kinetic bombardment of its molecules against the sides of its container a solution also exerts a pressure. This pressure is exerted by both the molecules of the solute and the solvent, is measurable, and is known as the osmotic pressure. As in the case of gases, this pressure is directly proportional to the number of molecules of solute per unit of solvent. More simply stated, the greater the concentration of the solution the greater the osmotic pressure. The osmotic pressure of a solution can only be measured by separating two solutions by a semi-permeable membrane. Consider first a solution of water and sodium chloric separated from a pure water solution by a membrane which is freely permeable to both the water molecule and the sodium chloride molecule. In the human organism

such a membrane exists between the vascular and interstitial fluids. In this experiment there are more molecules of sodium chloride in the salt solution than in the pure water solution. Therefore molecules of sodium chloride will filter through the membrane to the pure water solution. In the pure water solution there are more molecules of water per unit of water than in the salt solution. Therefore water will filter through the membrane to the salt solution. This bilateral diffusion will continue until both solutions contain the same concentration of sodium chloride and water molecules. No osmotic pressure will develop because all the constituents of the solutions are freely diffusible. Suppose, however, that these same two solutions are separated by a membrane which is permeable to water but not to sodium chloride. Such a membrane exists in the body between the interstitial fluid and the intracellular fluid. The pure water molecules will then diffuse to the salt solution to equalize the water molecular concentration on both sides of the membrane. In other words, the salt solution will tend to be infinitely diluted. The passage of this water is known as osmosis and exerts a definite pressure. Apply now to the salt solution an external pressure of an increasing degree. This external pressure will reach a point where it will overcome the pressure exerted by the pure water molecules and will stabilize the flow of water between the two solutions. The measure of the external pressure necessary to accomplish this is the measure of the osmotic pressure of the pure water solution. Physiologically this type of pressure is exerted by the blood pressure within the vascular field. Osmosis can therefore be defined as the diffusion of water through a semi-permeable membrane from a site of higher water concentration to a site of lower water concentration. Osmotic pressure can be defined as the pressure necessary to prevent this osmosis. Lastly, consider two solutions having the same molecular salt concentration but containing different salts. Separate these two solutions by a membrane impermeable to all salts but permeable to water. Such a membrane is thought to exist between the interstitial and the intracellular fluids. In this experiment water will diffuse at an equal rate between the two solutions as both have the same molecular concentration and therefore exert equal osmotic pressure. These solutions are said to be isotonic. Isotonicity, therefore, is not dependent upon the kinds of salts in solutions but upon the concentration of the salts involved.

The organic solutes, such as urea, glucose and creatinine are almost without influence in water exchange because of the fact that they all seem to be freely diffusible and are therefore distributed equally throughout all the body media. In adjustments of water balance, these inorganic solutes

move with the water and have little if any effect on the balance pattern.

The colloids, such as protein and lipoids, furnish stability to the fluid balance. Under normal conditions all animal membranes are impervious to their passage. By virtue of this fixed position, colloids possess a powerful attraction for water. Because of their distribution in unequal concentrations in the various media of the body there always exists a strong tendency for water to be constantly on the move between cellular, interstitial and vascular fluid. This tendency is neutralized and balanced by the hydrostatic action of the blood pressure and the selective permeability of the body membranes towards the inorganic electrolytes. In pathological states this protein gradient is the chief cause of maldistribution.

The influence of the hydrostatic action of the blood pressure on fluid exchange is enormous both in health and disease. It has been shown already how the application of pressure to a solution of low osmotic pressure can neutralize and even overcome the passage to it of molecules from a solution of higher osmotic pressure. In the human organism it has been shown that the protein concentration in the circulatory fluid is higher than in the interstitial fluid. As a consequence there is an ever present pull of water to the circulatory fluid from the interstitial fluid. However, the pressure of the blood within the arteriole is sufficient to overcome this protein pull and water is literally pushed into the interstitial fluid. When the capillary and venule is reached this hydrostatic pressure is reduced to the point where the protein pull is greater. Water therefore is sucked back into the circulatory fluid at these points. It can readily be seen that tremendous disturbances of the fluid balance will occur if the hydrostatic pressure within the arteriole is reduced to any appreciable degree. It is easy to understand why the vascular tree has been endowed with the automatic power of contractility to maintain blood pressure at a constant level.

In the kidney, the human organism has a safety valve without which life could not be maintained for any appreciable length of time. Since it is chiefly by means of this organ that water and electrolytes are excreted to maintain fluid balance, some study of its mechanism is essential to our subject. The action within the kidney in its relation to fluid is divided into two distinct phases, the filtration action of the glomeruli and the reabsorptive action of the tubules. Fluid is lost through the glomeruli and reabsorbed through the tubules. In the glomeruli the diffusible inorganic elements of the blood are in the same concentration in the filtrate as in the blood stream. As a consequence of this osmotic balance the diffusion of water and electrolytes is under the complete con-

control of the antagonistic action between the blood pressure and the blood protein concentration. Protein cannot ordinarily pass through the capillary tuft and is therefore concentrated on the blood stream side of the exchange. Its resistance to the passage of water and electrolytes measures approximately 20 millimetres of mercury. The blood pressure, however, within the tuft amounts to 60% of the peripheral arterial pressure. In other words there is a pressure head built up within the tuft amounting to about 70 millimetres of mercury which tends to push the water and electrolytes out of the capillary. This is resisted by a protein pull of 20 millimetres of mercury tending to hold water and electrolytes within the tuft. Filtration, therefore, can only be altered by the raising or lowering of either the protein concentration or the hydrostatic action of the blood pressure. Since under normal conditions the pressure head within the tuft is so much greater in force than the protein pull filtration is—for all practical purposes—chiefly under control of the blood pressure. The peripheral blood pressure would have to drop to around 40 millimetres of mercury before filtration would cease. The rate of glomeruli filtration is enormous. It amounts to above 100 cubic centimetres per minute. At this rate over 140,000 cubic centimetres of water and electrolyte pass through the glomeruli into the tubules every twenty-four hours. It can readily be seen that to increase urinary output to an appreciable degree through glomerular filtration would be almost impossible physiologically. Actual urinary excretion, however, amounts to less than one cubic centimetre per minute. The tubule, therefore, has to reabsorb about 99 per cent of the glomerular filtrate. It is easily seen that the determination of how much water and electrolyte should be retained and how much excreted rests almost entirely with the reabsorptive action of the tubules. The tubules only have to decrease reabsorption one per cent to double the urinary flow. The mechanism of reabsorption is at present not thoroughly understood. It seems within certain limitations to follow the laws of osmosis. It is known that in some imperfectly understood manner it is influenced by the endocrines, chiefly the cellular nests around the thalamus and pituitary. The thyroid gland and the adrenals are also mixed up in the picture, either directly or as some "way station" of influence. It is known that the tubules have the power to ignore osmotic laws and to concentrate salts, thus ridding the body of electrolytes while at the same time conserving water for the blood volume. It is also known that, when faced with an excess of salts and a water deficit, it will utilize the water available to excrete the salts less common to the circulatory fluid and to reabsorb those more common. Thus it will excrete magnesium

and calcium at the expense of sodium and chlorine. Tending to follow the laws of osmosis and at the same time exhibiting a selective action towards sodium chloride causes the kidney to excrete isotonic sodium chloride solutions slowly and over a long period of time, under normal conditions. It is estimated that the normal kidney will excrete 10 to 15 grams of sodium chloride daily, depending upon the intake. However, it is also estimated that the normal kidney, when confronted with an excess of sodium chloride, will handle an intake of from 40 to 45 grams per day for an appreciable time without the body tissues showing much evidence of edema. It can thus be stated that the human organism can handle any quantity of isotonic saline as long as the body lacks water and electrolyte. When the body fluids have returned to normal balance the kidney will safely handle a daily intake of up to 3000 to 4000 cubic centimetres of isotonic sodium chloride over a reasonable length of time.

Having discussed each of the elements concerned in fluid balance separately, it is now possible to consider the pattern as a whole. It must be understood, however, that all the elements concerned in fluid balance work simultaneously and not individually. Thus when it is stated that the kidneys excrete electrolyte to protect the water of the body cell, it must be realized that before the kidneys can act in an adequate manner the imbalance is bound to draw some of the water from the body cell. Thus all the protective mechanisms are theoretically adequate but practically only relative.

Normally, water lies distributed between the vascular fluid, interstitial fluid and intracellular fluid in perfect balance. Since protein concentration is highest in the intracellular fluid, lowest in the interstitial fluid and high again in the circulatory fluid, there is a constant gradient to water flow. This is most marked from interstitial fluid to intracellular fluid and less marked from interstitial fluid to intravascular fluid. To balance this protein gradient, the hydrostatic action of the blood pressure tends to push water out of the arterioles. To balance and to provide an equalizing force, the highly selective action of the inorganic electrolytes comes into play. The exchange of fluid under normal conditions and to a great extent under pathological conditions rests almost entirely with the sodium chloride molecule. The intracellular molecule, potassium phosphate, is trapped within the cell due to the fact that the cell membrane is impervious to its passage. Since the cell membrane is also impervious to the passage of the sodium chloride molecule and since this same molecule is concentrated in the extracellular fluid, it controls the water content within the body cells. As the sodium chloride molecule is the

principal electrolyte available to the excretory mechanism of the kidney it constitutes the chief means of regulating total blood volume. Thus by increasing or decreasing the sodium chloride concentration in the interstitial fluid, water is added or subtracted from the body cell. At the same time this upsets the balance between interstitial and vascular fluid. Since the capillary membrane is pervious to both water and sodium chloride, both of these molecules will flow into the vascular fluid until electrolytic balance occurs. This increases the blood volume and the kidneys slow down on the reabsorptive mechanism of the tubules and the excess is excreted. To put this process in reverse, when saline is injected into the blood stream, it raises both the electrolytic concentration and the blood volume. If injected in isotonic proportions there will be no imbalance with the interstitial fluid and the renal mechanism acts alone to excrete it. If an imbalance exists either through the existence of a pathological state or the injection of a non isotonic solution, then sodium chloride and water will flow to the interstitial fluid. Since the cell membrane is impervious to sodium chloride, water only will flow into the cellular structure from the diluted interstitial fluid. The reabsorptive mechanism of the renal tubules will then set about to adjust water and electrolytic balance at its proper level.

The pattern of the normal ingestion of water follows the same lines. The intestinal cell is freely pervious to both water and to all salts. The intestine has a remarkable similarity to the kidney in that it excretes daily between 7,500 and 10,000 cubic centimetres of fluid and reabsorbs all but 150 cubic centimetres of it. The ingested water is drawn into the circulation by the higher concentration of the vascular fluid. This dilutes the vascular fluid which then gives water to the interstitial fluid. This dilutes the interstitial fluid which then gives to the cellular fluid until balance is once more established. The overloading of any of these fluids is guarded against by the tubular function in the kidney. In the daily normal metabolism, about three thousand cubic centimetres of fluid is required. Approximately 1,500 cubic centimetres is lost through renal excretion and the rest through the lungs, intestines, and normal sweating. It is thus important for the surgeon to realize that body media are in balance if the urinary output meets two requirements: It must be approximately half of the patient's intake and stabilized at 1,500 cubic centimetres.

The fluid patterns met with by the surgeon in pathological states are fortunately few and relatively simple. The most common of these patterns is that of surgical dehydration. The patient is excreting 3,000 cubic centimetres of fluid daily, of which 10 to 15 grams is sodium chloride. To

this is added a probable excessive sweating and perhaps an increased loss through respiration. It is also highly probable that nasal suction is involved which adds to the amount of fluid loss and may change the pattern from simple dehydration to one of alkalosis. At any rate the fluid deficit is essentially one of water and sodium chloride. The colloid pattern is normal. The hydrostatic action of the blood pressure is undisturbed unless the dehydration reaches the point where vascular contraction cannot compensate for lowered blood volume. The treatment is to give isotonic saline until the normal intake-output ratio is reached. Maintenance of balance is then achieved safely by giving a daily injection of water of 3,000 cubic centimetres. 1,500 hundred cubic centimetres of this should be isotonic saline and the rest isotonic glucose. The amount of water to be given and the proportion of isotonic saline must be increased if more than the normal amount of fluid or a higher proportion of sodium chloride is being lost. The intake-output ratio will still be the best guide to quantity. The fluid used should be isotonic saline until this balance is reached. This statement only holds good in case the renal excretory mechanism is above suspicion.

The pattern of water intoxication is one of the electrolytic balance being upset far beyond the powers of the kidney to compensate. In this pattern the body is losing salt and water. In response only water is given to the organism. As a consequence the vascular fluid is diluted to an extreme degree. The reabsorptive mechanism of the kidneys responds and attempts vainly to compensate. The excess water filtrates through to the interstitial fluid and from there to the intracellular fluid. The body cells become swollen and hydroptic from excess fluid and manifest their resentment in a variety of symptoms leading finally to convulsions and death of the organism. Whereas this condition is rarely met with in surgery, the internist sees this mechanism at work in heat cramps and heat stroke. The prevention and correction of this pattern is the furnishing of sodium chloride to the organism.

The fluid pattern of traumatic shock is of extreme importance to the surgeon. In view of the vagueness of the term "traumatic shock" it is perhaps well to define it. Traumatic shock is a condition of tissue anoxia brought about by circulatory failure due to a lowering of the blood volume from trauma. The causative trauma can be anything from rough and heavy handed surgery to the extensive and widespread damage of accidents and burns. The diminution of blood volume by an actual tear in the vascular tree will only be mentioned. There is a loss of whole blood in this condition and whole blood should be used to correct it as far as possible. When whole blood in quan-

ity is not available, the fluid therapy should follow that which will be advocated for secondary shock.

Primary or neurogenic shock is a reflex phenomena due to pain and fright. There is no essential loss of fluid from the vessels either to the outside environment or to the interstitial pool. In fact, due to the lowering of the hydrostatic pressure of the blood, the protein pull of the intravascular fluid tends to pull interstitial water into the circulation. In this condition, the blood volume is lowered only in a relative manner. In other words, the containing vessels are enlarged creating a deficient venous return to the heart and thus producing circulatory failure and tissue anoxia. The only deficit here is one of blood volume and the correction lies in the rapid restoration of this volume. Since all fluids are in balance, it is necessary to use a fluid which will not disturb this balance. This means not only that sodium chloride should be used in isotonic concentrations but also that physiological proportions of blood protein (preferably as plasma) must be added in order that the protein concentration in the vascular fluid should not be diluted. The saline-protein fluid should be given rapidly and in any quantity necessary to restore blood volume. It must be borne in mind that tissue anoxia renders capillary walls pervious to colloid. If neurogenic shock is not quickly corrected it will, in itself, create the essentials for secondary shock.

The surgeon rarely, if ever, sees neurogenic shock in the pure form. The leakage of fluid into the interstitial spaces from the vascular field, (characteristic of secondary shock), begins within a few minutes of the infliction of trauma. This fluid loss reaches its maximum degree in from eight to ten hours but continues in a lesser degree for twenty-four to thirty-six hours. The condition necessary for the production of this so-called secondary or delayed shock is that the walls of the capillaries become pervious to colloid. Just how this abnormal permeability is brought about is not definitely known. It is not proposed to deal with the numerous theories in this paper. It is necessary to understand, however, that the essential factor in this condition is the permeability of the capillary wall to vascular protein. The capillary wall is permeable to water and sodium chloride under normal conditions. Due to this abnormal permeability of the capillaries, colloid passes from the vascular fluid to the interstitial fluid. The creation of this enormous protein pool in the interstitial spaces upsets drastically the protein gradient. There is a constant and overwhelming pull of water and sodium chloride from the vascular fluid. There is, to a lesser extent, a definite pull of water from the body cells. The lowered hydrostatic pressure within the vascular tree has

a mild tendency to correct the fluid flow to the interstitial space. It has a definite tendency to conserve blood volume by its effect on both the filtration and reabsorptive functions of the kidneys. The loss of fluid into the interstitial spaces is so overwhelming that vascular contraction cannot maintain blood volume. The blood pressure falls drastically. Venous return to the heart is impaired. Circulatory failure results in tissue anoxia. The tissue anoxia increases the capillary permeability to colloid and more fluid is lost. Thus a vicious cycle is created which if not quickly corrected will result in the death of the organism.

The fluid pattern is thus seen to be simply an accumulation of blood protein in the interstitial spaces which draws water and sodium chloride to it, thereby creating a reduction of the blood volume. It is easily seen that the treatment of this condition lies primarily in the restoration and maintenance of the blood volume. It is obvious that there is no solution of water and electrolyte that will correct this condition when injected alone. Any such solution will only be sucked quickly out of the blood stream by the protein concentration in the interstitial space and will add more fluid to this already overloaded space. It is fundamentally necessary in the treatment of traumatic shock that the protein content of the vascular fluid be restored. Water, sodium chloride and protein are missing from the vascular fluid. Therefore water, sodium chloride and protein in physiological proportions should be used to correct this condition. The ideal solutions to be used are blood plasma or serum along with isotonic saline. The quantity to be used can very simply be stated. It is the quantity, no matter how large, required to restore the blood pressure and thus the blood volume to normal. Until the blood volume is at normal levels, one cannot overload the organism with isotonic sodium chloride if given with an adequate amount of colloid. The water-logged tissues seen in post-mortems on shock cases is rarely, if ever, due to overloading with fluid. It is due to underloading with plasma protein. Simply stated, unless an adequate amount of protein is given, any water solution, including isotonic saline, will drown the body tissues. If an adequate amount of protein is given no water solution can overload the body tissues until blood volume has been restored.

Speed in restoration of the blood volume is essential if one is to count on the safety element of the renal mechanism. It has never been proved that the trauma responsible for shock directly damages the kidneys. The renal damage is believed to be caused by the concentrated vascular fluid becoming so viscous as to be unable to circulate through and nourish the renal cells adequately. Prompt and adequate fluid therapy will therefore

not cause but will prevent renal damage. If adequate fluid therapy has been delayed, the clinician is faced with the necessity of giving large amounts of fluid with dubious factors of safety. Recognition of the importance of protein in traumatic shock has resulted in the formulation of mathematical formulae to determine the exact proportions in which it should be given. The difficulty with mathematical formulae is that one learns them in the quiet of his library and promptly forgets them in times of need. It seems best to utilize some simple rule of thumb even if it is not quite so exact, scientifically. Through clinical observation it has been found that to give plasma in the proportions of one to ten with isotonic saline is usually quite adequate. The clinician should then watch the tissues in the vicinity of the traumatized area. If he observes increasing local edema he has a definite indication for increasing the proportion of colloid.

The use of hypertonic solutions in traumatic shock is of temporary and doubtful value. These solutions, by raising the electrolytic concentration of the vascular fluid, will overcome temporarily the excessive protein pull of the interstitial pool and draw water back into the vascular system. However, once the water has diluted the hypertonic solution into an isotonic solution, the fluid promptly flows back towards the interstitial protein pool.

In the shock due to severe burns it is often impossible to take the blood pressure. As a consequence one is forced to use the haemoglobin estimation to check blood volume. In estimating the blood concentration it should be remembered that normal haemoglobin, as the clinician sees it, is usually in the vicinity of 70 to 80 per cent and not one hundred per cent.

The fluid pattern of the body media in disturbances of the acid-base equilibrium is as important to the surgeon as to the clinician. Disturbances of the acid-base equilibrium, seen by the surgeon, are chiefly due to the escape of gastrointestinal fluid to the outside environment. Under normal conditions, the excretion of saliva, gastric juice, bile, pancreatic juice and succus entericus into the gastro-intestinal tract amounts to from 7,500 to 10,000 cubic centimetres per day. Normally all except 50 to 150 cubic centimetres of this fluid is reabsorbed. The gastric juice is rich in chloride and if lost in quantity will lead to alkalosis. The other intestinal juices are all rich in the base sodium, and when lost to the external environment will lead to acidosis. The loss of pancreatic juice and succus entericus from the ileum is particularly important as these juices are exceptionally rich in the base sodium. In spite of the loss of chloride prolonged vomiting can lead to acidosis. This occurs only when the vomitus contains more of the

alkaline intestinal juices than the acid gastric juices.

Starvation acidosis is seldom of clinical importance in the surgical case. Starvation, in the average case, is rarely prolonged beyond the protective limits of the glycogen reserve and the ability of the ammonium radical to displace and protect the sodium ion. In young children, however, the glycogen reserve is quickly dissipated and starvation acidosis can become of major importance. Also, in diseases of the liver and in thyrotoxicosis the glycogen reserve can become sufficiently depleted to permit starvation acidosis. Ammonia, synthesized from urea, has the power to displace the sodium ion from ketone acid. This permits the ketone acid to be excreted as a neutral salt of ammonia and protects the sodium ion. In this manner the equivalent of 800 cubic centimetres of one-tenth normal HCl can be handled without depleting the sodium base. Clinical acidosis does not occur until first, the glycogen reserve is depleted and secondly, ammonia is no longer available to prevent the excretion of the sodium ion. Glucose solution will not correct acidosis. It has not the necessary sodium ion to replace blood base. It can only prevent the formation of ketone acids. It is therefore only of value in preventing acidosis. When acidosis has been established, glucose can only prevent the further production of ketone acid.

The fluid pattern presented by upsets of the acid-base equilibrium is always one of dehydration with reduction of blood volume. The chief base of the blood is sodium. The chief acids are chlorine and carbonic acid. The chief electrolyte of the extracellular water is sodium chloride and this molecule controls water exchange and excretion. When either sodium or chlorine is lost from the blood stream, the electrolytic concentration of the circulatory fluid is automatically reduced. Water is then sucked into the circulation from the other body media and then excreted through the kidneys. In this manner all adjustments of the acid-base equilibrium are made at the expense of body water and thus of blood volume. In the more severe degrees of acid-base disturbances, the blood volume reduction can be carried beyond the compensating ability of the vascular tree. Blood pressure will then fall, circulatory failure and tissue anoxia follow, and clinical shock becomes a major issue.

In either acidosis or alkalosis both sodium and chlorine in varying quantities are lost from the blood stream. The acid-base balance is kept intact by the accumulation or excretion of carbonic acid. The total electrolytic content of the blood stream is reduced but the electrolytic balance is maintained by water exchange and excretion. The blood volume is drastically reduced. Water and

sodium chloride have been lost. Therefore water and sodium chloride must be used to correct this condition. To keep the electrolytic balance, the sodium chloride solution should be isotonic. Although sodium and chlorine have been lost in unequal amounts, isotonic sodium chloride will correct both acidosis and alkalosis. The excess sodium will be neutralized and excreted as sodium bicarbonate. The excess chlorine will be neutralized and excreted as ammonium chloride. Isotonic saline also has the necessary water content to correct dehydration and restore blood volume. If the disturbance has been so great as to lead to severe clinical shock then colloid is being lost to the interstitial fluid and must be replaced. In treating severe acidosis, if one wishes to spare the kidneys the necessity of excreting a chloride excess, sodium lactate may be used. The lactate radical is easily oxidized and disposed of. The solution recommended in this circumstance is Hartmann's Solution. This consists of a solution containing 0.3 per cent sodium lactate, 0.6 per cent

sodium chloride, 0.04 percent potassium chloride and 0.02 per cent calcium chloride.

It is noticeable that very little has been said thus far of glucose solutions. This does not mean that glucose is without value in surgery. In the 5 per cent isotonic solution, glucose has a definite value as a water carrier. After the correction of fluid patterns and the restoration of sodium chloride deficits, it is the easiest and safest way of furnishing water to the organism. It is obvious that it cannot correct losses of salt. It is easily oxidized and easily excreted and therefore is of great value when kidney function is under suspicion and blood volume must be quickly and safely restored. When the glycogen reserve is depleted and food cannot be taken over long periods of time, its caloric value is indisputable. In 10 to 50 per cent concentrations, glucose is the most valuable of hypertonic solutions when dehydration of the cellular tissues is desired. Summarized briefly, glucose should be used in support of but not in place of saline solution.

## PAEDIATRICS

Edited by S. Israels, M.D.

### Bulbar Poliomyelitis

#### A Medical Emergency\*

Harry Medovy, B.A., M.D.

Lecturer in Paediatrics, University of Manitoba

Bulbar involvement is responsible for practically all the deaths which occur from epidemic poliomyelitis. Most of the publications which have to do with poliomyelitis are devoted to the problem of diagnosis of the disease and the management of skeletal deformities. The management of the emergencies which occur in bulbar poliomyelitis is referred to briefly if at all. Much has been learned in recent months about the management of bulbar poliomyelitis as the result of large epidemics in Minneapolis and Los Angeles and the application of some of this knowledge, we believe, contributed to the survival of some of the children referred to in this report.

Cases of bulbar poliomyelitis may be divided into two main groups. In the first group one or more of the cranial nerve nuclei are involved, while in the second group the autonomic centres for respiration and circulation are affected.

#### Group I. Cranial Nerve Involvement

Involvement of cranial nerves I-VIII commonly occurs in cases of bulbar poliomyelitis and does not ordinarily result in death. Involvement of the third nerve nucleus may cause ptosis, squint and pupillary disturbances. In the Minneapolis series

of 183 cases in 1946, 11% showed third nerve involvement. Disturbance of mastication may occur as a result of involvement of the fifth cranial nerve. Acute trismus may develop as a result of irritation of the fifth nerve nucleus. This complication occurred in 3 of the Minneapolis series and in 1 of ours.

Facial palsy is common. It occurred in 53% of the Minneapolis series and in about half of ours. Deafness and vestibular disturbances may occur but are uncommon.

Involvement of the tenth nerve, however, creates a serious situation. Weakness or paralysis of the soft palate, pharynx and vocal cords develop. Clinically these children develop a nasal voice, hoarseness, accumulation of secretions in the back of the throat and difficulty or complete inability to swallow. If there is also involvement of the eleventh and twelfth nerve nuclei swallowing becomes impossible, food cannot be moved around in the mouth and saliva cannot be expectorated.

Pooling of secretions in the child's throat results in an obstruction to the airway. As a result of the interference with air entry cyanosis and pulmonary oedema may occur. The resultant reduction in oxygenation of the brain augments the damage already done to the nervous system by the disease itself and produces an encephalitic picture in which the child is stuporous or even comatose and in which vital respiratory and circulatory centres may become affected.

\* From the Wards of the Children's Hospital, Winnipeg.

### Group II. Respiratory and Circulatory Centre Involvement

Baker of Minneapolis has demonstrated at post mortem that involvement of the autonomic centres for the control of respiration and circulation which are situated in the reticular substance of the medulla, may occur in some cases of bulbar poliomyelitis. He is of the opinion that hypoxia resulting from the respiratory difficulties referred to above is often responsible. Irregularity in the rhythm and depth of respiration may occur even in the presence of an adequate airway and apparently adequate respiratory muscle movement. The patient may develop a florid complexion, rapid pulse and a high blood pressure. The prognosis is extremely serious when this occurs.

Death from bulbar poliomyelitis is nearly always due to respiratory complications. These may be due to one or more of three causes:

- (1) Weakness or paralysis of muscles of respiration.
- (2) An obstructed airway as a result of pooling of pharyngeal secretions.
- (3) Involvement of the respiratory centre in the medulla.

If we are to reduce the mortality from bulbar poliomyelitis the application of correct emergency measures for the relief of respiratory complications is extremely important. Where respiratory difficulty is due to peripheral involvement of the diaphragm and respiratory muscles the respirator is of immense value. The respirator is, however, of little help and may be actually contra indicated if the airway is obstructed.

The occurrence of pooling of pharyngeal secretions constitutes a medical emergency. Treatment consists of posturization and frequent or continuous suction or tracheotomy to establish an open airway. Oxygen should be administered by means of the tube or in an oxygen hood. The successful management of cases showing involvement of the autonomic centres depends on the establishment of a satisfactory airway with resultant improvement of cerebral oxygenation.

Two case reports are selected from our series to illustrate the application of these principles.

Case 1. Marlene N., a nine-year-old female from Winnipeg, was first seen by the author on October 26, 1949, because of fever, headache and sore throat of 24 hours duration. Examination on that day revealed a non-toxic looking girl with a moderate pharyngitis. There were no other findings. Sulfadiazine, fluids and bed rest were prescribed. On October 28, 1949, the temperature was normal but that evening fever and headache returned and on the afternoon of October 29, 1949, the mother reported that the headache was worse and that Marlene had "mucus" in her throat which she could neither swallow nor expectorate. On

examination she seemed drowsy and toxic. Her voice had a nasal twang. The back of her throat contained a large collection of mucus which Marlene could not swallow but could expectorate with considerable difficulty. There was a nasal regurgitation of fluids. Her temperature was 102° F., pulse 126, resp. 24. Respirations were slightly rapid but regular. There was little or no palatal movement. Rhonchi were heard in both lung bases. No peripheral paralysis was evident.

Admitted to Children's Hospital the same afternoon, her condition gradually worsened. Spinal fluid showed 88 cells per c.m.m., Pandy test positive, smear and culture negative. Cyanosis developed. It became difficult to open her mouth to suck out the secretions which began to pool in her pharynx. She became restless and by noon the following day had lapsed into coma.

Because of the deepening cyanosis and pooling of secretions in the pharynx tracheotomy was decided upon. This was done by Dr. I. H. Beckman at 1 p.m., October 30. With repeated suction of the tracheotomy tube, continuous oxygen by the same tube and the administration of parenteral fluids her condition improved rapidly. Her color became normal, respiratory movements normal and her sensorium cleared within 24 hours although speech did not return for several days. By November 4 she was able to swallow and to speak and suctioning could be discontinued. On November 8 her tracheotomy tube was removed. There was no further nasal regurgitation and no pooling. By November 17 the only evidence of bulbar involvement was a slightly nasal quality to her speech. She was discharged on November 18, 1949.

This was a case of bulbar poliomyelitis with involvement of 10-12th cranial nerves and possibly also the 5th. Respiratory obstruction resulted from pooling of secretions in the pharynx. An encephalitic picture ensued which was evidently due to cerebral hypoxia since it cleared up quickly when a satisfactory airway was established by tracheotomy. There seems to be little doubt that tracheotomy was a life-saving procedure in this case.

Case 2. Margaret S., a nine-year-old female, was admitted from Souris, Man., on Sept. 2, 1949, with a history of fever and aching neck for 3 days, nasal voice and a nasal regurgitation of fluids. There was marked generalized muscle stiffness. Temperature was 102° F. Respirations were shallow but regular. Spinal fluid examination showed 90 cells, 100 mgms. Protein.

During the next 24 hours there was slow but definite progression of symptoms. Marked pooling of secretions in the pharynx developed. In spite of frequent suctioning, posturization and oxygen administration respirations became shallow and

rapid, cyanosis developed and the patient became comatose.

Tracheotomy was done by Dr. M. B. Perrin on September 3, at 6 p.m. Improvement was rapid and dramatic. Within 24 hours her sensorium was clear, her color good and respirations satisfactory. Gavage feedings were started on Sept. 5. By Sept. 7 swallowing had returned and on Sept. 12 the tracheotomy tube was removed. Marked peripheral paralysis remained and hot packs and physiotherapy were instituted.

She was seen again in January, 1950. There are no residual bulbar signs. There is still evident weakness of the left leg and some arm weakness.

This was a case of bulbo-spinal poliomyelitis with respiratory obstruction and prompt relief by tracheotomy.

In all, ten cases of bulbar poliomyelitis were seen in late 1949 at the Children's Hospital. In some, although pooling of secretions was present on admission posturization and frequent suctioning kept the airway clear and further progression of the disease did not occur. In one instance, with a history very similar to the two detailed above, death occurred in spite of tracheotomy and an apparently adequate airway. We feel that in this case irreversible damage had been done to autonomic centres controlling respiration.

Tracheotomy is a serious surgical procedure and should not be undertaken lightly. However,

when one is faced with respiratory obstruction due to pooling of pharyngeal secretions, when progression of symptoms occurs in spite of posturization, frequent suctioning and oxygen administration, tracheotomy may be a life saving measure. It should be pointed out that the administration of oxygen intranasally or in a tent does not increase the oxygen saturation of the blood if the respiratory airway is occluded by secretions. It should also be emphasized that while the respirator may be of real value in peripheral muscular paralysis involving the muscles of respiration, it is of no value in the presence of an obstructed airway and its use may hasten death by permitting the aspiration of pharyngeal contents.

### Conclusions

(1) Bulbar poliomyelitis constitutes a medical emergency of the first magnitude.

(2) Respiratory tract obstruction due to pooling of pharyngeal secretions should be treated by posturization and careful suctioning.

(3) Tracheotomy may be life saving and should not be delayed if suctioning does not halt progression of symptoms.

(4) Oxygen should be administered freely in order to keep cerebral oxygenation at as high a level as possible.

Dr. Jack Bowman gave valuable assistance in the preparation of this report.

## PATHOLOGY

### Clinical Pathology 2. Hemoglobin

Paul T. Green

Medical Department, Deer Lodge Hospital

The estimation of hemoglobin, theoretically, should be a simple affair. However, as Wintrobe remarks:

"There is probably no single laboratory procedure which is more generally employed in clinical medicine than hemoglobin determination. Yet there are few that are carried out less satisfactorily."

#### Sampling

When an analysis is carried out to determine the value of any constituent of a material a small sample of the material is used. Now it is obvious that if the sample analyzed is not representative of the whole material then the results of the analysis will be useless and misleading. In determining hemoglobin content of blood a representative sample of blood must be obtained. Usually one of two methods is used for obtaining blood for analysis: 1, venepuncture; 2, skin puncture. Samples obtained by venipuncture show values

that agree very closely one with another in hemoglobin content. Blood obtained by skin puncture in different regions of the body do show some differences but not enough differences in hemoglobin content to be of practical significance. However, it is essential that one obtains blood on skin puncture and not a mixture of blood and tissue juices. This is particularly likely to occur when blood is obtained from fingers that are somewhat edematous, such as those in rheumatoid arthritis, or in severe anemias. Indeed, if a free flow of blood is not obtained and one resorts to squeezing the finger to obtain a sample much juice can be expressed; sometimes one can obtain clear fluid with no blood at all. Obviously under such circumstances a diluted blood is obtained and falsely low hemoglobin values are obtained.

Therefore do careful skin punctures:

Select a finger that is not edematous, if possible. Have the finger warm. Clean off the finger bulb with alcohol and allow the alcohol to evaporate so that the blood is not diluted with alcohol. Puncture the skin to a depth of about one-quarter inch, using a quick stab with a triangular blade (Hage-

dorn needle, a guarded scalpel blade or a blood lancet). A free flow of blood should be obtained. Wipe away the first drop of blood. If a free flow does not occur, do not squeeze the finger, but encourage the blood flow by pulling aside the margins of the puncture.

When doing a number of tests on finger-tip blood, it is best to take samples consecutively for tests that are related; for example hemoglobin and red cell counts should be consecutive samples, and then white cell count and differential.

#### Measuring of Blood Sample

In most methods of hemoglobin estimation a sample of blood is measured in a pipette. Unfortunately pipettes are not necessarily accurate. Indeed the error in pipettes as they come from the manufacturer can be as great as 17%, but generally runs around 4%. This error may be overcome by using Bureau of Standard pipettes, or by calibrating the pipette oneself. Broken ends of pipettes, of course, introduce an error in measuring a sample, and so do dirty pipettes whose walls are coated with precipitated protein.

The pipette must have an unbroken column of blood from the tip to the indicator line at the 0.02 ml mark. Allowing extra because of a bubble of air in this column is not conducive to accurate work.

The pipette is filled by touching the tip to a blood sample and either allowing it to run in by capillary attraction, or by sucking up the sample through a rubber tube attached to the pipette. The pipette, of course, must be dry. Blood is taken to a point just above the 0.02 ml mark, and then the outside of the pipette is wiped dry of blood, and the column of blood is brought down to the mark by touching the tip of the pipette to a clean finger until the mark is reached.

It takes some practice to become proficient at this because the maneuver must be completed before the blood clots in the pipette.

#### Commonly Used Methods for Determination of Hemoglobin

##### Looking at the Conjunctiva

Clinical estimation of hemoglobin, of course, is something that should be encouraged, if one realizes the marked limitations of this method. The redness of mucus membranes depends on other factors, such as the degree of vascular engorgement, as well as on the redness of the blood circulating. It is true that one often detects the presence of a reduced hemoglobin content of blood by clinical examination of the patient. It is also true that one encounters pale people who are not anemic, and conversely anemic people who are not pale. An interesting experiment is to select a dozen patients whose hemoglobins are scattered over a wide range, and take a dozen physicians and ask them to guess what the value of the hemo-

globin might be from inspecting the patient. The discrepancies will convince anyone of the crudeness of this method.

##### Blotting Paper Methods

This simple method depends on collecting a drop of blood on blotting paper and comparing the color of the red paper as produced with standard papers. The color, however, varies with the composition of the blood, in terms of various types of reduced or oxygenated hemoglobin, and the colors often do not compare well; red colors are difficult to compare as a rule anyway. The error in this method runs in the regions of 20%, and is therefore, very rough.

##### Direct Color Comparisons

Instruments are available which compare the color of a drop of blood between pieces of glass, with a standardized color wedge. One advantage of these machines is the fact that no pipette is required, but on the other hand, an error in depth of the blood drop may be a factor. They are also quite portable. The main difficulty here is the fact that visual color matching is necessary, and the ability to match colors varies greatly from individual to individual. We have found that some technicians are not very adept at this type of comparison. In our limited experience with this type of hemoglobinometer we have found that the standard error runs at 4%. We have also found that their calibration gave lower values than our own, with the one instrument that we had the opportunity to use. These instruments (Spencer Hb-meter), are useful in office practice, but it would be well to check the calibration on the instrument, by doing a series of, say twelve determinations on the same sample of venous blood on this instrument, and obtain the average; and do the same on a photoelectric colorimeter that was accurately calibrated, and obtain the average and in that way to see how good the calibration of your instrument might be.

##### Sahli Method

In this method, hemoglobin is converted into acid hematin, and the acid hematin mixture is diluted until its color matches the color of a standard, the dilution tube being calibrated to read off the hemoglobin, at the final fluid level. There are several objections to this method: acid hematin is a suspension and not a true solution; it takes time for the conversion of hemoglobin to acid hematin; at room temperature it takes about 20 minutes before 95% is converted, and longer for infant's blood; at 40°C it takes ten minutes. The brown color is hard to match. Presence of jaundice increases the color, but usually this does not introduce a great error unless there is marked anemia present. However, with care and attention to detail hemoglobins can be determined with a standard error of 4% at the 100% level.

**Method**

All apparatus must be strictly clean, and care in sampling and pipetting, of course, must be observed. The glass standards must be kept out of sunlight, as they fade, and indeed tend to fade in time anyway.

Into a few drops of 0.1 N hydrochloric acid in the diluting tube empty the pipette full of blood, washing out the pipette by drawing the acid-blood mixture back and forth into the pipette. Place the diluting tube in a 40°C water bath for exactly 10 minutes (or allow to stand at room temperature for 20 minutes). Add dilute hydrochloric acid drop by drop with mixing, and comparing the color with the standard by means of the same light source (and therefore preferably artificial light) until a match is obtained. Read the result on the scale.

**Photoelectric Colorimeter Methods**

The photoelectric colorimeter has two advantages: 1. It eliminates the subjective error in color comparison; 2. It is much more sensitive to slight changes in light intensity than is the human eye. It introduces the disadvantage that goes with any mechanical device; and that is the need for understanding the working of the device. It is proposed to leave a consideration of the photoelectric colorimeter to a later date.

In this country, the measurement of oxyhemoglobin is the commonest method for determining hemoglobin on the photoelectric colorimeter. The disadvantage here is that some substances, such as methemoglobin and sulfhemoglobin if present, will not be converted into oxyhemoglobin, however, the difference in absorption spectra between these substances and oxyhemoglobin is not sufficient to introduce a great error in the simpler types of colorimeters.

**Method**

0.02 ml of blood is introduced into a 0.1% sodium carbonate solution, and the volume of solution used depends on the type of colorimeter. The pipette is rinsed out in this solution, and the solution is then shaken in order to oxygenate it and convert the hemoglobin to oxyhemoglobin. This is allowed to stand for five minutes, and then is read in the colorimeter. The accuracy varies with colorimeters, but with the Lumitron, and Leitz the standard error runs at 2.8% at the 100% level.

**Other Methods**

A method which is quite useful for rapid screening is the specific gravity method. In effect, the specific gravity of the blood is determined by allowing a drop of blood to fall into solutions of copper sulfate of known specific gravities, and by observing whether the drop sinks or falls, or remains suspended one can know whether the drop of blood is lighter, heavier or the same specific gravity as the copper sulfate solution. By observing the difference in specific gravity between

whole blood and serum or plasma, the specific gravity of the red cells can be determined. This method works quite well for anemias where the color index is unity, but gives false readings in other anemias, and therefore is not useful except for screening purposes.

The hemoglobin can be determined by measuring the combining power of blood for certain gases such as oxygen, or carbon monoxide. These methods are accurate methods but are not suitable for routine use because they require much time and equipment.

Determination of the total blood iron is also a fairly accurate method for determination of hemoglobin, because 0.339% of the hemoglobin molecule is composed of iron. This is assuming that the non-hemoglobin iron content of the blood is negligible, which is a safe assumption for normal bloods but may not be true in abnormal bloods. The method is comparatively involved and is therefore not used for routine clinical use.

In a large laboratory, however, it is necessary to set up careful calibrations for hemoglobins, and this should be done by one of the more accurate methods, such as gas combining power or total blood iron on normal bloods.

**Methods of Expressing Hemoglobin Values**

There are two methods of expressing hemoglobin values:

1. In terms of grams of hemoglobin per 100 ml of blood.

2. In % of normal.

Objections are raised to expressing values in %, because it is pointed out that there has been no agreement as to what 100% hemoglobin is. However it is convenient to express hemoglobin values in % as it gives the clinician a quick indication of where any given hemoglobin value is in relationship to "normal" individuals without having to do some mental arithmetic. Therefore it is best to express a result in terms of %; stating what the absolute figure for 100% is, in terms of grams of hemoglobin per 100 ml of blood. For example, a report might read "Hemoglobin 78%" (100% = 15.6 gms%).

In each laboratory where hemoglobins are being done it is therefore necessary to know what 100% is. The best way to do this would be to measure the hemoglobin of 100 normal adult males on any scale, and plot the results, taking the mean as 100%. The absolute value of 100% could then be determined by measuring the gas combining power, or the iron content of a series of blood whose values were expressed in % and thereby finding out what 100% was.

**Normal Values and Significance of Abnormal Values**

At Deer Lodge Hospital we determined hemo-

globin values on 250 normal adult males. We found that 95% of these individuals fell between 90 and 110% (i.e. twice the standard deviation). By means of total blood iron determinations it was found that 100% was equivalent to 15.6 gms% hemoglobin.

We therefore feel that in an adult male, any hemoglobin value below 90% is very probably significantly abnormal, and should call for an explanation.

A similar method has not been applied to females, but hemoglobins below 85% in the female are probably significantly abnormal.

The significance of abnormally low hemoglobins, of course, merely means that this finding

should be explained, if possible. The explanation should be expressed as an accurate diagnosis, "anemia" not being a diagnosis any more than is "fever."

It must be recalled that there is a fair degree of error in determinations, and therefore in borderline values repeated determinations should be done before too much significance can be attached. A single borderline reading should not be given much weight.

It should also be recalled that although by our previously expressed concept of "normal" hemoglobin, values within so-called normal limits may not be normal. 66% of adult males have hemoglobin values about 95%, and in this laboratory we view with some suspicion values below 95%.

## MEDICINE

### Duodenal Ulcer

#### Recent Trends in Diet Therapy\*

J. Wendell Macleod, O.B.E., M.D., F.R.C.P. (C)

Lecturer in Medicine, University of Manitoba  
Physician, Winnipeg Clinic

Let us consider one of the most interesting problems in medicine, the origin and the management of duodenal ulcer. I specify duodenal because gastric ulcer differs in many respects and is less well understood. Its special problems will not be considered here. Duodenal ulcer has been called a disease of our Western civilization, but it occurs in so many parts of the world and in so many races that it must be related to something more subtle than geography, occupation, diet, dentition, sanitation, focal infection, etc., which have all been invoked as causal factors at one time or another. In fact, a review of the changing conceptions of causation of this disease offers good background for discussion of certain current trends in diet therapy. A century ago, ulceration of the upper gastro-intestinal tract was recognized only by its complications—hemorrhage, perforation or obstruction, and chiefly at autopsy. With the advent of x-rays and modern surgery a particular pattern of symptoms was established as belonging to the patient with duodenal ulcer. This symptom pattern in its simplest form, consists of a gnawing ache in the upper abdomen appearing regularly several hours after meals, relieved by food and alkaline medication, tending to be present for several weeks two or three times a year, with rather complete freedom from dyspepsia in between.

The treatment of ulcer by the end of World War I followed a fairly standard line—usually drinks

of milk and cream, with alkaline powders interspersed. The diet was increased through many tedious stages and in a month or two the patient emerged with flabby muscles, a diet list full of "don'ts" and a rather fearful awe of the little erosion in his duodenum that had put him to so much trouble and expense. Sometimes he changed his job, cut out a few vices and pleasures or altered his life plans, but it was the diet that stood out as the dominant element in the treatment. It was something tangible; he could keep it in his bureau drawer against the day of return of symptoms. Then when they returned, nine times out of ten he would blame them on failure to follow the diet or on the possibility that he did not have the right diet. Nothing could be more natural than this point of view when the current conception of the disease focussed attention on the local anatomical defect in the stomach or duodenum. Nevertheless, this treatment was highly successful in a large proportion of cases, and one must not suppose that it rested entirely on an empirical basis. Its main exponent, the late Doctor Sippy of Chicago, realized that milk and cream neutralized and diluted the gastric juice, thus diminishing its digestive action on the damaged mucosa.

The period between the two wars was characterized by the great growth in our knowledge of the physiology of gastric secretion and of the abnormality present in the duodenal ulcer patient. The present conception of an underlying muscular and secretory hyperactivity has offered a rational basis for treatment measures which had already proved to be valuable in practice. When an ulcer is active one uses frequent feedings to neutralize and dilute the gastric juice. An effort is made to omit foods which are themselves acid or which are powerful stimulators of gastric secretion. Foods which are bulky or mechanically difficult to reduce are

\* Reprinted in part from Journal of Canadian Dietetic Association, xi: 108, Dec., 1949. "The Dietary Implications of Current Trends in Clinical Medicine," Annual Convention, Canadian Dietetic Association, June 16, 1949, at Winnipeg, Manitoba.

avoided, not from fear of scratching the ulcer but because they stimulate the tract to even greater muscular activity. Indeed, the reduction of muscle hypertonus must be quite as important as the reduction of acidity, and eating has something important to do with this matter of securing muscular relaxation.

Perhaps the current trend in ulcer dietetics as regards food selection may be summarized as follows: when the underlying physiological disturbance is active (and pain is its best indicator), the patient is given frequent feedings of bland foods in mechanically simple form. As soon as pain disappears, which usually means a subsidence of the abnormal muscular and glandular activity, the diet is increased rapidly to include a liberal variety of nutritious foods based largely on the patient's natural preferences. By "rapidly" is meant from one-quarter to one-tenth the time to run through the old Sippy series. Hourly drinks, with or without antacids, are maintained. In between ulcer attacks, the patient eats almost anything he likes, as long as it is a normal diet; but he is urged to continue with a milk drink between meals for years. This latter stipulation along with control of smoking serves as a symbol to the patient, replacing the old diet sheet which either ruined his life and that of his wife, or was relegated to an obscure corner and forgotten. As will be emphasized later, the ulcer patient often needs a ritual to follow. As far as diet goes, the less disturbing that ritual is, the better. For example, the inclusion of acid fruit juices and acid stimulating meats in a convalescent diet is permissible because nutritionally and aesthetically these foods have value which outweigh the acid consideration.

Our discussion now reaches its final phase. We saw the ulcer first as a local anatomical lesion, then as part of a physiological disorder and now we come to consider the ulcer patient as a whole. What kind of person is he? How does he get this way? What can we do about him? We must tread carefully because the people with duodenal ulcer run a great part of our world. They include many of our bosses and so-called natural leaders. As a group they tend to be well endowed with energy and initiative. They are sought in commerce because they are conscientious and ambitious. In housework the ulcer woman is spotless and her attitude toward an overcoat hung on the floor is uncompromising. The bouts of ulcer activity may come on either when the ambition is being frustrated or when the greatest success is being achieved. It often accompanies great overwork but I knew a surgeon who was most comfortable when his day was full, and who had most trouble when on quiet vacations. When the ulcer patient is unsuccessful he is often alcoholic, morbid or pre-occupied in the following of a strict diet. Usually,

however, he is casual about his own health—the very opposite of neurotic.

Now that we have typed him may we ask where the ulcer person gets his perfectionism and extraordinary drive. Was he born this way or did life so mold him? Opinion is divided. The constitutionalist argues that his personality traits as well as certain physical characteristics are inherited. The psychoanalyst says he is compensating for some basic inadequacy in early life. No doubt each theory has validity in certain cases. The second thesis is attractive because it permits a more optimistic attitude towards treatment. During the past three years we have been searching in the early personal history of our ulcer patients for situations or circumstances of living which might create a basic feeling of inadequacy or emotional insecurity for which the subsequent aggression or perfectionism might be natural compensation. In perhaps half of our cases, something of this sort could be discerned. For example, the ulcer woman, youngest of a large family, with an alcoholic father and a mother too busy ever to take her on her knee, may be seized by a tremendous urge to restore the family's social prestige and to be herself a success. She is perfect in all things and not even her closest friends know that under that poise and composure of the successful woman lies a depth of insecurity. They only wonder at her constant striving for new worlds to conquer. Another instance is the boy reared in a dour and strict Scottish home where scholarship was all important and the showing of affection was disdained. He was afraid of his father and ashamed to confide in his mother. Only when he was successful in schoolwork did he achieve confidence. Ulcer symptoms developed when he was afraid he would fail to get a scholarship and recurred when he was competing for a professorship. Although the first patient was indifferent to eating, the second always turned to food when discouraged. Moreover, he was painfully conscious of the feelings of inferiority acquired in childhood, whereas the woman was blissfully unaware of what had happened. In both cases the hyperacidity and hypertonus were marked in early adult life and led to duodenal ulceration. Some would suggest that the physiological disorder arose in connection with certain frustrated personality needs at crucial stages in growing up. It had to do with the need of affection, security or moral support. The physiological imbalance (i.e. gastro-intestinal hypertonus) seemed to be most troublesome in later life at times when the individual's security was threatened, or when he was actively engaged in establishing the prestige which he needed.

What has all this to do with diet? First of all may we agree that the treatment of the ulcer patient involves trying to understand him? If he

has fixed or bizarre ideas about eating and foods, can we remember that these may be rituals or props which meet his special personality needs? An ulcer patient may become very attached to his diet; it has become to him a symbol of security. We have all seen the ulcer patient cured by surgery who still clings to his diet. In fact, he may still cling to his symptoms if they have helped him through rough spots in life. An ulcer gives a man specific privileges at home and at work; it may excuse his not attaining certain goals expected of him. If we remove the need of a strict diet or cure his ulcer by surgery, without putting something in its place, we may leave him in an insecure state. It is the choice of the replacement symbol that brings me to my final point. Too often it has just been a pill, or just another diet. This may pacify but it does nothing toward emancipating the patient from his invalidism or dependency. What we try to do instead is first of all to provide the symbol in the form of something new in personal relationships. The patient will drop his strict diet, or his symptoms, when he derives real moral support from his physician and the others in the therapeutic team. The relationship should partake of a friendship or camaraderie, with elements of parental protectiveness. The aim of treatment is to aid the patient to acquire insight into the origin of his discomfort and into the make-up of his personality. Only then will he lose his dependency on the treatment team and draw more

and more on his own resources. Thus we have used both the science and the art of medicine, not only to treat an ulcer but to help emancipate a human being.

The last word is on the role of the dietitian in this process. The special bond developing between the physician and the patient has been emphasized, but the doctor is an innocent fellow if he imagines he has done his end of it alone. He is only the captain of a "treatment team" which included internes, dietitians, nurses, technicians, orderlies and the newspaper boy. All of these should be associated by the patient with the curative process. There should never be absence of harmony in this group. At ward rounds the patient should hear the diet instructions given along with the ordering of medications. The dietitian or diet nurse present is then invested with the full authority of the physician. In this way she will participate in his psychotherapy in addition to playing her role as a diet specialist.

#### Suggested Reading

1. Food and Its Emotional Significance, by Charlotte E. Babcock, M.D. *J. Am. Dietet. A.* 24, 390, 1948.
2. The Hospital Dietitian and Her Profession, by Sister Irene Marie, Halifax Infirmary, Convention Report of Canadian Dietetic Association, 1948, p. 48.

### Obesity, Hypertension and Diabetes Treated by Weight Reduction

S. Vaisrub, M.D., M.R.C.P. (Lond.)

The frequency of association of obesity and diabetes, diabetes and hypertension, and obesity and diabetes, has been repeatedly demonstrated by numerous observers. Statistical studies tend to corroborate this universal clinical impression. In view of this, it is not at all surprising to find that attempts have been made to influence hypertension and diabetes by weight reduction.

Significant lowering of Blood Pressure, attained by reducing the weight of obese hypertensives, has been reported by Master<sup>1</sup>. Similarly, successful restoration to normal of glucose tolerance curves in obese diabetics, by weight reduction has been achieved by Newburgh and Conn<sup>2, 3</sup>.

The case to be described is of interest because of concurrence in one patient of all three major disturbances under discussion, and their favorable response to weight reduction.

#### Case Report

J. A. T. a 37-year-old male, was admitted to Deer Lodge Hospital on July 22nd, 1949, for investigation of hypertension and glycosuria, dis-

covered on routine examination. He had always enjoyed good health. His family history was not remarkable, except for obesity in some of its members. He had no complaints on admission.

The patient's weight in 1937 was 196 pounds. He has, subsequently, gained 50 pounds over a period of years. The following relevant findings were noted: Height, 5 feet 11 inches; weight, 246 pounds; blood pressure, 160/105; urine, sugar<sup>++</sup>.

Glucose tolerance test showed a diabetic curve.

Fasting blood sugar	135 mgms. %
½ hour	235 mgms. %
1 hour	220 mgms. %
2 hours	185 mgms. %
3 hours	137 mgms. %

Strict adherence to a low calorie diet resulted in a steady progressive loss of weight. On Oct. 6 his weight was 205 pounds. His B.P. correspondingly fell to 130/92 and his Glucose tolerance curve became normal.

Fasting blood sugar	97 mgms. %
½ hour	122 mgms. %
1 hour	160 mgms. %
2 hours	70 mgms. %
3 hours	67 mgms. %

He was discharged on Nov. 10, 1949, weighing 195 pounds.

#### Comment

In his review of a large series of cases of obesity, Master<sup>1</sup> found hypertension in 67%. With loss of weight there occurred a corresponding fall in Blood Pressure. In 53 patients, whose average reduction in weight was 25-30 pounds, the systolic Blood Pressure was reduced on average by 25-30 mm. and the diastolic by 15-20.

The frequency of hypertension complicating diabetes, as reported in the literature, ranges from 15%<sup>4</sup> to 56%<sup>5</sup>, Edeiken<sup>6</sup> reported hypertension in 38% of 100 diabetics studied clinically. White and Waskow<sup>7</sup> found it in 40% of 200 diabetics. Similarly high figures are given by Kramer<sup>8</sup> and Root and Sharkey<sup>9</sup>.

Even more striking is the relationship of obesity to impairment of glucose tolerance. A large number of glucose tolerance tests done by Kish, Paullin and Sanby, and by Johns, indicated that 60-70% of all obese middle aged people without glycosuria have lessened glucose tolerance. Perhaps even more significant is the fact that 50-80% of all diabetics are obese. Among 100 diabetics reported by Joslin<sup>10</sup> 77% were overweight. These almost invariably belonged to the middle aged and elderly, insulin insensitive group of diabetics (Diabète gras).

An important contribution to the management of the obese diabetic was made by Newburgh and Conn<sup>2, 3</sup>. These workers have reported effects of weight reduction upon the impaired glucose tolerance displayed by 62 obese diabetics. 36 cases of the 47, who co-operated fully, have achieved normal tolerance after adequate weight reduction.

Several theories have been put forward to explain the intimate relationship between obesity and diabetes. Some of them depart radically from our old concepts of the nature of diabetes.

Newburgh attributes the occurrence of hyperglycemia and glycosuria in the obese to the excessive accumulation of fat in the liver with a resulting impairment of its capacity to lay down glycogen. Insulin deficiency, whether absolute or relative, plays no part in the etiology of this type of diabetes.

A different view is held by Stetten<sup>11</sup>, whose experimental work with Deuterium in rats, has revealed the important part played by Insulin in the conversion and storage of carbohydrate as fat. Stetten suggests that excessive demand on insulin for the purposes of fat storage in the obese, puts a "strain" on the pancreas, thus causing diabetes.

Even more ingenious is the interpretation proffered by Lawrence<sup>12</sup> who suggests that in the obese, the fat depots are filled to capacity, and, consequently, the proportion of ingested carbohydrate which is normally turned into fat cannot be disposed of.

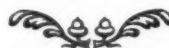
Regardless of theoretical considerations and ultimate explanations, the important fact to bear in mind is, that a large proportion of diabetics may be in a sense, curable. It thus devolves upon the physician who is confronted with an obese diabetic to spare no effort at attempting weight reduction.

#### Summary

A case of diabetes and hypertension with restoration of normal blood pressure and normal sugar tolerance by weight reduction has been presented and discussed.

#### References

1. Master, Oppenheimer, J.A.M.A., May 18, 1929.
2. Newburgh, Conn, J.A.M.A., Jan. 7, 1939.
3. Newburgh, Conn, Ann. of Int. Med., Dec., 1942.
4. Nathanson, Am. J. Med. Sc., 183: 495, 1932.
5. Friedman, Arch. Int. Med., 55: 371, 1935.
6. Edeiken, Am. J. Med. Sc., 209: 8, 1945.
7. White, Waskow, South M.J., 41: 561, 1948.
8. Kramer, Am. J. Med. Sc., July, 1928.
9. Root, Sharkey, Ann. Int. Med., 9: 873, 1936.
10. Joslin, Diabetes Mellitus.
11. Stetten, J. Biol. Chem., 155: 231, 1944.
12. Lawrence, Lancet 1, 724, 773, 1946.



## CASE HISTORIES

### Stones in Common Bile Duct Exploration of Common Bile Duct

S. S. Peikoff, M.D., F.R.C.S. (Ed.),  
F.R.C.S. (C), F.A.C.S.

*This is the third of a series of Case Histories which will appear in the Review each month. The purpose of these publications is not to present rare or unusual cases but rather to consider the routine management of common surgical conditions.*

Case No. A-104, Miss F. W., St. Boniface Hospital. Color, white. Age, 54. Occupation, Secretary. Date of admission, January 4, 1948. Date of operation, January 10, 1948. Date of discharge, January 30, 1948.

#### Complaint on Admission

1. Pain in right upper abdomen on two occasions in past month.
2. Continuous belching and epigastric distress—20 years.
3. Friends tell her she looks "yellow"—4 days.

#### Present Illness

Patient has had chronic dyspepsia for years. She complained of flatulence, pressure in the stomach, with no particular relation to meals. She would get periods of relief for several months at a time. About one month ago (December 6, 1947), she was seized with a sudden, severe, excruciating pain in the epigastrium which radiated to her back and shoulders after having eaten the pan fat from a steak. The attack lasted all night, and was relieved by morning. Patient did not vomit on this occasion. About one week ago (December 28, 1947), following the ingestion of a fat steak, she was seized within an hour with the same type of pain, and vomited several times. This attack lasted about 2 days, and was more or less continuous. She began to lose her appetite completely. She noticed her sclera becoming yellowish, and her urine was very orange in color. The stools were much lighter in color than usual. She claimed to have lost about 15 pounds in a year. Within the last several months, she was becoming constipated, and had to resort to cascara as a laxative. She was becoming more tired every day, and had occasional frontal headaches.

#### Inventory by Systems

Eyes—Vision good. Wears glasses for reading. No diplopia.

Ears—No tinnitus. Occasionally gets deaf in the right ear.

Throat—Does not get sore throats; mouth is dry. Burning sensation in the tongue.

Respiratory—Does not get colds. No cough, expectoration or haemoptysis. Does not get short of breath.

Cardio-vascular—No palpitation, retrosternal pain, dyspnoea, or edema.

Gastro-intestinal—See present illness.

Genito-urinary—No frequency or nocturia. No pain on micturition. No haematuria.

Menstrual—Menarche at 13 years of age. Interval 28 days. Duration 3-4 days, with moderate flow. Menopause at 48. No post-menopausal discharge or bleeding. No hot flushes.

Nervous system—Feels over-tired and cannot sleep. Frequent headaches. "Feels dopey" and depressed.

Musculo-skeletal—Considerable weakness in both limbs. Pains and aches all over the body. No disturbance in gait.

Metabolic—Lost weight in the past year (138 to 124 pounds). Intolerant to cold weather.

#### Past History

Sebaceous cyst removed from the neck and one from the abdominal wall—1946. "Goiter trouble" in 1945, treated medically. Has had no other illnesses, operations or accidents.

#### Family History

Father—Died at 78 years—high blood pressure.

Mother—Died at 76 years—diabetes.

No sisters.

One brother—Alive and well, age 48 years.

#### Personal History

Spinster.

Stenographer—20 years.

Likes her work.

Appears well adjusted.

#### Physical Examination

A thin, tall, tired-looking patient, with sallow skin and slightly icteric sclerae, who does not appear to be suffering any pain or distress.

##### Head and Neck:

Cranial Nerves—Intact.

Eyes—Conjunctivae definitely icteric. Pupils normal in size, react to light and accommodation. Some pallor of ocular fundi.

Ears—Right auditory canal packed with wax.

Nose—No obstruction.

Teeth—False.

Tongue—Coated.

Tonsils—Small and buried.

Neck—Right thyroid lobe prominent and moderately enlarged. Left lobe not palpable. No lymphadenopathy. No distended veins.

Face—Appears to be a muddy color.

Chest:

Heart—Normal in size. Apex  $3\frac{1}{2}$  inches from midline at 5th interspace. Heart sounds good. Rhythm regular. Rate 74 beats per minute. No murmurs or extra systoles. Blood pressure 130/80.

Lungs—Chest normal in contour. Movements equal and symmetrical. Tactile fremitus good. No dullness on percussion. Breath sounds normal. No adventitious sounds.

Mammas—Small, shrunken, atrophied. Nipples and areolae normal.

Abdomen—Normal movements on respiration. Normal contour. Thin wall. Slightly icteric tinge to the skin. Abdomen soft, with no tenderness on palpation. No masses felt. Liver and spleen not palpable. Reflexes present and equal.

Vaginal examination—Not done.

Rectal examination—Mild mixed haemorrhoids. No pruritis ani or fissure. No masses felt. Bimanual examination shows uterus to be small and atrophic. No masses felt in the pelvis.

Spine—Normal curvatures. Normal movements. No tenderness on percussion. No bedsores.

Extremities:

Upper—No wasting. No clubbing of fingers.

No deformities.

Reflexes:	Right	Left
Biceps	++	++
Triceps	++	++
Supinator	+	+

Lower—Cold to feel. No deformities. No wasting. Moderate varicosities both legs. Pulsations in dorsalis pedis and posterior tibial good. Vibration sense good. No ulcers. No changes in sensation.

Reflexes:	Right	Left
Knee	++	++
Ankle	++	++
Plantar	V	V

#### Clinical Laboratory Findings

Blood count—January 5, 1948. Red cells, 4,740,000. Hemoglobin, 94%. Color index, 1. White cells, 8,300. Differential leucocytes—Polymorphonuclear Neutrophiles, 70%. Small and large Lymphocytes, 30%.

Urinalysis—Color, amber. Reaction, acid. Specific gravity, 1.024. Chemical: Albumin, 0; Sugar 0. Bile, present. Microscopic, negative.

Stool Exam—Occult blood, negative.

Blood, Wassermann—Negative.

Itcerus Index—12.5 units.

Van den Bergh—Delayed direct.

Hippuric acid test—100%.

Prothrombin time—100%.

X-ray findings—Cholecystogram: The gall bladder is not visualized by Priodax. Several irregular opaque shadows which occupy varying situations on different films are noted in the right half of the abdomen. These have the appearance of calcified nodes. (Dr. F. G. Stuart).

Barium Series—January 7, 1948: The chest and oesophagus are fluoroscopically negative. The stomach and duodenum appear normal, although the stomach is slightly ptosed. Four hours: stomach is empty, with the head of the meal in the transverse colon. The colon is ptosed. Twenty-four hours: there is a residue throughout the colon. The caecum is not tender. Appendix is visualized. Summary: Visceropostitis. (Dr. F. G. Stuart).

#### Pre-operative Diagnosis

Obstructive jaundice, probably due to a stone or "gravel" in the common bile duct. The diagnosis was based on the long history of dyspepsia with intolerance to fatty foods, the attacks of pain simulating biliary colic, the direct Van den Bergh reaction, the absence of liver damage (normal hippuric acid test and prothrombin time), and the presence of a non-visualizing gall bladder.

#### Indications for Operation

There being sufficient evidence to suggest an obstructive type of jaundice, early operation was decided upon to determine the cause and relieve the obstruction. It is not my policy to delay operation and procrastinate in the presence of obstruction.

#### Pre-operative Preparation

The patient was in a fairly good state of hydration and nutrition with no anemia. She was placed on a high carbohydrate, high protein, low fat diet, supplemented by glucose drinks, biminal tablets b.i.d., ascorbic acid 300 mg. daily, and synkamin i ampoule b.i.d. for 5 days before operation. The patient was grouped and matched for transfusion pre-operatively.

#### Detailed Description of Operative Technique and Findings

Position—Supine. Skin cleansed and painted with merthiolate. Draped.

Incision—A right paramedian incision from the xiphoid process of the sternum to a point  $\frac{1}{2}$  inch to the right of the umbilicus was made. All bleeding vessels were clamped and tied with chromic catgut 000. Skin towels were applied. The anterior rectus sheath was divided longitudinally, the right rectus muscle retracted laterally, and the posterior rectus sheath and peritoneum picked up and incised longitudinally.

Exploration of the abdomen: a systematic survey of the stomach, duodenum, large bowel, uterus and adnexa, spleen, kidneys and liver, showed all these organs to be normal. A self-retaining retractor was placed in the wound and a large moist abdominal pack was placed to cover the stomach and small and large intestine and wall them off from the operative field. The gall bladder was normal in size, but the wall contained considerable subperitoneal fat. Two small stones

could be palpated in Hartman's Pouch. A few flimsy adhesions bound Hartman's Pouch to the first portion of the duodenum and these were separated off by finger gauze dissection.

The common bile duct was next exposed and appeared somewhat dilated. No stones could be palpated in the duct. The index finger was passed into the foramen of Winslow and the head of the pancreas palpated and found to be normal in size and consistency.

Exploration of common bile duct—a gauze pack was placed in the Foramen of Winslow. The common duct was aspirated with syringe and needle for identification, and a few drops of greyish-brown inspissated bile recovered. Two stay sutures of fine chromic gut on an atraumatic needle were then inserted in the supraduodenal portion of the duct about one inch below the cystic duct. These were held in forceps and used to steady the duct. A one-centimeter longitudinal incision was made into the common duct between the stay sutures and a light yellow thick, cheesy, inspissated bile oozed out. This was removed with suction and gauze sponges. A scoop was then gently introduced in both upward and downward directions to clean out the remaining debris. A fine catheter was also introduced in both directions and the duct irrigated with saline. A courvoisier forceps was introduced towards the liver and towards the duodenum but no true stones found. A fine graduated dilator was then easily passed through the ampulla of Vater into the duodenum and no obstruction found. A rubber T-tube was inserted into the common duct, the opening closed around the tube with interrupted sutures of chromic gut 000 on an atraumatic needle. The long limb of the T-tube was brought out through the upper end of the abdominal incision.

Removal of the gall bladder—a curved forceps was placed on the fundus of the gall bladder and another on Hartman's Pouch to be used for traction. Using a curved gall bladder forceps and alternately opening and closing the blades, the cystic duct was isolated, doubly clamped and severed between the clamps,  $\frac{1}{4}$  inch from the common duct. The stump was doubly ligated with chromic gut 0. The cystic artery was then isolated, clamped, cut and doubly ligated with chromic gut 0. With gentle traction applied to the neck of the gall bladder, the latter was then dissected from its bed with curved scissors, leaving a  $\frac{1}{4}$  inch leaf of peritoneum on each side. As the gall bladder was dissected free, the two leaves of peritoneum were approximated with a continuous interlocking suture of chromic gut 000 so as to cover the raw surface of the liver. A rubber Penrose drain was placed in Morrison's Pouch and brought out through a stab wound placed to the

right of the skin incision. The appendix was then removed en passant.

Closure—the peritoneum and posterior rectus sheath were closed with a continuous suture of chromic catgut 1. The anterior rectus sheath was closed with interrupted sutures of chromic catgut 1. The skin was approximated with interrupted vertical mattress sutures of silkworm gut. The long limb of the T-tube was anchored to the uppermost skin suture. A safety pin was placed on the Penrose drain and a dressing and elastoplast bandage applied.

#### Anaesthetic

Pre-medication—Tuinal gr. iii at h.s. Morphine gr. 1/6 with atropine gr. 1/150 one hour pre-operatively.

Pre-operative condition—Temperature 98.6° F. Pulse 70. Respiration 20. Blood pressure 110/70.

Agents—0.75 gm. sodium pentothal, followed by nitrous oxide and oxygen and supplemented with 150 units of D-tubo Curarine.

Technique—Semi-closed; pharyngeal airway.

Stimulants—700 cc. 5% dextrose in normal saline intravenously.

#### Gross and Microscopic Description of Tissues Removed

Pathological Tissue—January 10, 1948.

Appendix—of rather small calibre, and tortuous; no adhesions; lumen tiny and empty.

Gall Bladder—Of normal size; wall thickness of 2 mm. Mucosa finely granular and of light greenish-yellow color. Bile clear and of normal color. Two small brownish calculi present of B.B. shot calibre.

Microscopic—Musculature hypertrophied; inflammatory edema in sub-mucosa and mucosa, where some folds are thickened and stunted.

Summary—Chronic cholecystitis with cholelithiasis. (Dr. Prendergast).

#### Final Diagnosis

1. Chronic cholecystitis and cholelithiasis.

2. Obstructive jaundice due to inspissated bile in common bile duct.

#### Progress Notes Including Post-operative Care During Stay in Hospital

January 10, 1948—Time of operation, 9.15-10.45 a.m. Post-operative condition of patient good. Pulse 88. Respiration 24. Blood pressure 100/70. T-tube connected to drainage bottle. Demerol 100 mg. p.r.n. for pain. Intravenous 1000 cc. 5% glucose and saline. Patient turned frequently in bed. CO<sub>2</sub> inhalations OH i. Adrenalin 5 minims t.i.d.

January 11, 1948—Restless. 100 mg. Demerol given. Intravenous 1000 cc. 5% glucose in water and 1000 cc. 5% glucose in saline. Changed dress-

ing. Penrose drain shortened  $\frac{1}{2}$  inch. Urinary output satisfactory. Decholin tablet t.i.d. for 3 days —to promote bile flow. Nitroglycerine 1/100 gr. in a.m. Olive oil oz. 1 for 2 evenings. Post-operative temperature 100° F. for 3 days and then normal. Penrose drain shortened daily, and completely removed on January 16, 1948.

January 14, 1948—Bathroom privileges.

January 18, 1948—Walking about wards. Complains of some backache. Skin sutures removed. Wound looks good.

January 20, 1948—P.A. film of the right half of the abdomen. The previously noted opacities in this region are no longer present. Cholangiogram—The common and hepatic ducts are well visualized by diodrast introduced via the T-tube. The media passes readily into the duodenum, and no obstruction or dilatation is present. Some leakage into the gall bladder bed is noted. (Dr. F. G. Stuart).

### Tuberculous Salpingitis With Brief Review of Current Literature on Female Genital Tuberculosis

V. F. Bachynski, M.D.

This is a case history of a young Ukrainian female, who was born in Poland, and came to Canada in 1939, at the age of 14. In June, 1943, she was married at the age of 18.

Sept. 28, 1943. Seen for the first time, complaining of R.L.Q. pain, anorexia, and vomiting. Since July of 1943 she had several attacks of abdominal pain, moderately severe, sharp stabbing in nature with pain centering to the R.L.Q. These episodes were preceded by some salivation, anorexia and vomiting.

Review of systems was essentially negative, except as stated above, and some weight loss. Claims her best weight of 139 pounds was in July, 1943.

In her menstrual history, menarche was at the age of 17, interval 28-30 days with a duration of 2-3 days and associated with dysmenorrhea, chiefly in nature of R.L.Q. pain. Past history was essentially negative, as was the family history.

Examination showed a short, plump, young female, well nourished, and weighing 111 pounds. Except for R.L.Q. tenderness, her head and neck, chest and heart and abdomen were clinically negative. Temperature, pulse and respirations were normal. Urinalysis was negative. No other laboratory tests were done. She was admitted to the hospital with a diagnosis of subacute appendicitis.

Sept. 29, 1943. An appendectomy was done. At operation there were some omental adhesions to the

January 22, 1948—T-tube removed.

January 23, 1948—Tender indurated and inflamed area around the stab-wound. Hot fomentations applied. Penicillin 100,000 units OH iv for 2 days.

January 30, 1948—Discharged from hospital.

#### Condition on Discharge

Recovered.

#### Progress Notes Since Leaving Hospital

February 5, 1948—Convalescence very satisfactory.

February 12, 1948—Has gained five pounds.

February 18, 1948—Claims that she is improving steadily.

March 15, 1948—Now has no pain. Is eating well. Bowels are moving well and stools and urine are normal in color. Has no yellow discoloration of sclera or skin. Still feels some fullness after eating fatty foods.

#### Case History

caecum. A small amount of free fluid was present in the abdomen. A note was made at this time that "the serous surface of the small bowel is studded with a fine granular appearance, which appears tuberculous." There were no glands. Pathological report was a subacute appendix. Post-operative course was uneventful, and the patient discharged feeling exceptionally well. Temperature 99.8° on the first p.o. day, 99.4° on the second, and normal thereafter, until her discharge on the 9th day.

Sept. 4, 1945. That is, 2 years after initial visit, she returned complaining of pain in both lower quadrants premenstrually for 1-2 days, and associated pain in the back. She dated her symptoms back to a fall down the stairs 2 months previously.

Except for bilateral lower abdominal tenderness, physical examination was essentially negative. Vaginal examination disclosed a 15° retroversion with the uterus and adnexa to be otherwise normal.

May 26, 1949. Returned complaining of: 1. Burning R.L.Q. pain. 2. Numbness in the thighs. 3. Occipital headaches. 4. Sterility after 5 years marriage.

Temperature and pulse were normal. Physical examination was essentially negative. The pelvic examination showed the uterus to be in normal position. Both ovaries were extremely tender and the right one seemed to be low in the posterior cul-de-sac. There was some fullness in the left adnexa.

X-ray report of the chest was negative. Cystoscopic and pyelogram studies were normal. Normal excretion of the dye. Smears and cultures of ureteral specimens were negative for *Tubercle bacillus*.

Dec. 12, 1949. At Laparotomy, there was evidence of a chronic pelvic peritonitis with pelvic adhesions, dense in character and matting much of the structures on the left side into one indistinguishable mass. Both ovaries, particularly the left, showed a periovaritis with small follicular cysts. The uterine tubes were distorted with the distal end of the right being dilated. Ampulla of the right tube was thickened, flattened and unusually firm. Peritoneal surface showed no tubercles. Fimbriated extremity was flaring, turgid, and patulous on the right side.

**Operation:** Left salpingo-oophorectomy. Right salpingectomy.

**Pathological Report:** Distal segment of right tube 4 cm. long and of little finger caliber; wall oedematous and moderately dilated lumen contains a bloody exudate.

Table I

Synopsis of Current Literature

Based On Of all pelvic infections.....	Frequency of Genital Tuberculosis in a Female			Author
Autopsies with pelvic infections.....	Incidence	5-11%	1.5-3%	Combined from Curtis, Hurden, Norris, Menge, Hayneman.
Autopsies on Tuberculous women.....		4.6%	E. Held	
Of all adnexal tumors removed surgically.....		10-15%	E. Held	
Gynaecological Clinic (14,200 admissions).....		0.8%	E. Held	
Approx. Frequency of Involvement of Pelvic Organs in Genital Tuberculosis				
Organs	Incidence	Authors	Remarks	
Fallopian Tubes.....	80-100%	Combined from Frankle, Guixa, and Wharton	Most commonly associated with salpingitis.	
Uterus.....	50-70%	Guixa, Held	Autopsy: Uterus only, Adnexa not involved.	
Uterus.....	10%	Erickson	In association with salpingitis. Otherwise, rare.	
Ovaries (Periovaritis).....	100%			
Cervix.....	2%	Held		
Vagina.....	0.78%	Guixa	Contaminated nozzles, instruments, open lesions in male.	
Vulva.....		Held	Primary in children and adults.	
Appendix.....	3%			
Bladder or Kidneys.....	2%	Greenberg		

Conclusion as to Incidence

It may be stated that although tuberculosis of the female genital tract is very much less common than infection of other origin, pelvic T.B. and particularly salpingitis, certainly is not rare. In most cases, it is overlooked, and the surgeon is astonished when the pathologist reports that the tubes reveal T.B. If all tubes were carefully sectioned, particularly if many blocks were cut, T.B. would be found much more frequently.

Further Observations

1. Age: T.B. salpingitis is most frequent between 20 and 40, although children are by no means immune. The disease is rare after menopause, being limited almost entirely to active sexual life.

Guixa found 62.2% with genital T.B. to be under 30 years of age. Oscar Hagen (Stockholm) places his series of 98 cases found the age range

Distal segment of left tube contains a brown-red exudate; tube is firmly adherent to a large olive sized ovary riddled with small cysts, either serous or haemorrhagic; no corpus luteum.

**Micro:** Double chronic (tubercular) salpingitis; ovary not involved.

**Post-operative course:** Temperature 100° on the 1st day, 99.4° on the 5th, and normal thereafter. Out of bed on the 3rd day. Sutures removed on the 9th day. Wound clean, healed. Discharged on the 10th day.

Jan. 9, 1950. At home. Feeling well.

Jan. 12, 1950. Menses started, lasting 4 days. For the first time in many years her menses were free from pain and discomfort.

Jan. 27, 1950. Healed suprapubic scar. Pelvic examination essentially negative. Appetite good. Blood sedimentation 16 mm.

was 16-48 years, with 52% of the patients being under 25. As to endometritis, Berger Erickson found of 38 patients with T.B. endometritis the youngest to be 16 and the oldest 58. Almost 50% were over 40.

2. Previous inflammatory disease of the tubes is probably a predisposing factor.

3. It is rarely, if ever, a primary localization of the disease. It is almost invariably a local and a secondary manifestation of an infection which has its primary focus in some other organ in the body, usually the lungs, spread by hematogenous infection. The primary lesion may be difficult to determine and may not reveal itself after removal of the tubes. Primary foci in the lungs are said to be present in about 75% of the cases. Held claims that primary T.B. of the vulva has been observed in children and adults, but no unquestionable case of primary T.B. of the corpus uteri or tubes has been reported.

### Pathology at Operation

The pathological changes incident to the type of infection are both local and remote. The changes in the tubes themselves are practically always **bilateral** and vary from a mild catarrhal salpingitis to a destructive caseous tuberculous pus tube. In the majority of cases that come to operation, the tubes are found to be thickened, somewhat tortuous and to be studded with pearly gray nodules (miliary tubercles) the size of a pin-head, which may coalesce in places to form a larger lesion. On the other hand it may appear in the form of endosalpingitis, where the ampulla seems to be attacked first without peritoneal

lesions and misleads the operator as to its etiology. The associated pathology is very important. Almost always there is a pelvic peritonitis which may or may not be associated with pelvic adhesions dense in character matting the structure into one indistinguishable mass. It is almost invariably bilateral.

Disease of the ovary is present in nearly 100% of T.B. salpingitis, but the lesion is usually a periovaritis which often leads to formation of follicle cysts.

A common finding is an associated genital hypoplasia; the question is, which comes first, the tuberculosis or genital hypoplasia.

Table II

### Signs and Symptoms in Genital Tuberculosis

Type	Incidence	Author	Remarks
<b>1. Gastro Intestinal</b>			
Acute: Abd. pain, vomiting, fever, chills	33% (98 cases)	Hagen	3 operated for acute appendicitis
Mild: Anorexia, nausea, constipation, pelvic distress	16%	Hagen	
<b>2. Menstrual Disturbance:—</b> In 75% of all cases of Uterine T.B.			
(a) Dysmenorrhoea	10.2%		
(b) Menorrhagia	16.3%	Hagen	
(c) Oligomenorrhoea	6.1%		
(d) Amenorrhoea	0.3%		
<b>3. Sterility</b>			
Endometrial T.B. found in 5.3% of 1898 sterile cases			
Endometrial T.B. found in 5.5% of 820 sterile cases			
Endometrial T.B. found in 5.5% of 800 sterile cases			
In partial or complete obstruction of			
Tubes.....	33% of 54 cases		
Genital T.B. ....	53.3%		Danish figures
T.B. Salpingitis.....	74%		O'Brien and Lawlor
T.B. Endometritis.....	74%		O'Brien and Lawlor
<b>4. General</b>			
Mild Anemia			
Afternoon Temp. 99° - 102°			
Headache			
General Malaise			

### Differential Diagnosis

Many gynecologic conditions are mimicked by genital tuberculosis. The commonest is chronic salpingitis. This is the pre-operative diagnosis in the majority of cases; even with the abdomen open, the tuberculous nature of the salpingitis may not be suspected unless there are peritoneal tubercles, or unless there are caseous masses in the tubes.

In the majority of cases can a diagnosis of pelvic tuberculosis only be made definitely after direct examination of the tissues grossly, and in many cases microscopically also.

The salient clinical features that may suggest the diagnosis are:

(i) A history of pulmonary or extrapulmonary T.B. mainly of serous membranes and lymph nodes should always arise suspicion and about 36% give such a history.

(ii) Menstrual disturbance associated with an adnexal tumor. It should be noted that salpingitis in a young virgin is nearly always tuber-

culous and when a virgin has bilateral tubo-ovarian masses, the diagnosis of T.B. should be seriously considered. Rapid development of indurated adnexa tumors; failure of defervescence and of reduction in the size of adnexal tumors despite adequate medical and physical therapy; presence of adnevitis with intermittent irregular obscure attacks of fever, defying any therapy; sudden disappearance of an adnexal tumor due to perforation into a viscous; intestinal, vesical and vaginal fistulae showing poor healing tendencies are all suggestive. Large adnexal tumors with out fever and associated with a good general condition are characteristic of tubal cold abscess and of tubercular hydrosalpinx.

(iii) Sterility with obstructed or stenosed tubes in a woman without a history of genital infection, but with a history of tuberculosis, should arouse suspicion of T.B. of the genital tract, even if the vaginal examination is negative. Sherman believes that chronic endometritis in patients with primary sterility should be regarded as suggestive of tubercular infection.

(iv) In a febrile or subfebrile patient, it is impossible to differentiate between gonorrhreal adnexitis and the tuberculous form by the sedimentation rate, but in a febrile patient, the sed. rate is increased in 3/4 of T.B. infection, and in only 1/4 of gonorrhreal infection.

#### The Following Diagnostic Methods Are Available

(i) Direct, culture and biologic demonstration of tubercle bacilli in the adnexal or cul-de-sac puncture; in pus derived from an abscess perforated into the intestine or bladder, or in uterine secretions.

(ii) Histological examination of small bits of tissue obtained by puncture.

(iii) Direct curettage or biopsy.

(iv) **X-ray picture in T.B. salpingitis:** Because his experience indicates distinct value of the hystero-salpingogram for differential diagnosis of tuberculous salpingitis, Wolfgang Magnusson (Stockholm) reports his observations on 12 surgically verified cases of this type of tubal obstruction for which 200 non-tuberculous sterility cases with roentgen studies served as controls. Presumptive evidence of tuberculosis detectable in X-ray pictures are finely jagged, irregular lumen contours with small pinhead to rice-size filling defects and less frequently, abscess and fistulae-like dilatations of the tubal lumen. In the majority of cases these changes can establish the diagnosis of T.B. salpingitis. The circumscribed destructive changes in the tubal walls are probably specific for T.B. The non-homogeneous retention of the contrast medium in a closed sac-like tubal dilatations seen in delayed films is at least more frequent in T.B. than in other types of salpingitis.

(v) Laparoscopy.

(vi) Exploratory laparotomy.

#### Course in T.B. Salpingitis

Varies greatly, but in general may be said to last longer than salpingitis of other origin. Some cases, especially those debilitated by a pre-existing pulmonary lesion run a rapid down-hill course developing general peritonitis and ending fatally. Others show the acute symptoms of a few weeks only followed by an absorption of exudate and as a rule a residue of pelvic inflammatory disease.

#### Treatment of Pelvic T.B.

As in other forms of tuberculosis, general treatment should be the first consideration, when the patient's condition and course of disease permit.

Treatment of T.B. salpingitis is essentially surgical, unless the described process has advanced to such a degree that the dangers of surgical intervention outweigh the advantages.

According to Etinne de Meuron, treatment is surgical and/or conservative. Surgical method aims at removal of tuberculous lesion, or prevent-

ing their dissemination. One of the major indications for surgery, especially exploratory laparotomy, is uncertainty of the diagnosis. Other indications are pain refractory to other forms of treatment, severe persistent hemorrhage not amenable to conservative treatment, ascitis, ileus, secondary infection in presence of caseous mobile masses, and failure of conservative treatment. Surgery, he claims, is contraindicated in presence of T.B. foci in other organs, usually lungs, cachexia, high fever, and extension of the T.B. process to adjacent viscera with formation of rectal and vesical fistulae. Surgical operations should be performed exclusively through the abdominal approach. Young virginal patients should be spared radical removal of genital organs whenever possible.

At Mayo, belief is that since the tube is most frequently the source of intraperitoneal T.B. the patient has a better chance of recovery from the primary pulmonary lesion, and runs less risk of developing generalized T.B. peritonitis, if the tubes are not removed. In cases with marked ascitis, and extensive peritoneal involvement, simply opening the abdomen and evacuating the fluid seems to have a markedly beneficial effect. Conservation of the ovaries should be practiced in young women in all cases in which these are not extensively involved, because of their natural resistance to this infection. Erich Glatthan claims surgical treatment occupies first place. It is indicated in cases of isolated sufficiently mobile, clinically inactive adnexal T.B. and in advanced cases resistant to other therapy in which intervention is imperative.

J. R. O'Brien and M. K. Lawlor report that best results have been obtained by surgery particularly by radical surgery, which, however, one hesitates to use in young women.

**Non-surgical or conservative methods:** X-rays, ultraviolet, heliotherapy, actinotherapy, and biologic treatment have been found useful, if properly administered. The main objective of conservative measures is to enhance natural defences against infection.

**Roentgen Therapy:** Etinne de Meuron claimed that results are encouraging and is indicated in all cases in which heliotherapy and climatherapy are advisable, but not feasible; in cases where surgery is contraindicated and in those in which after exploratory laparotomy, the surgeon considers removal of affected organs dangerous. Although many gynecologists believe that there is no contraindication to roentgen therapy, it certainly is not advisable in young women with localized lesions. However, in all cases roentgen therapy, though not to be relied on as sole treatment, may be a valuable adjuvant. It must be

remembered that diagnosis must be confirmed by laparotomy.

Streptomycin may be helpful in cases of pelvic tuberculosis and should be tried before radical surgery is carried out. No statistical data could be obtained.

In all operated cases, where post-operative sanatorium treatment is available with heliotherapy, ultraviolet ray and Roentgen ray treatment carefully administered are of great importance. Most reports indicate that radical surgery far surpasses conservative, as far as ultimate results are concerned. Jameson of Saranac Lake, states that he has never seen an instance of spontaneous cure of genital tuberculosis. One gathers the impression from the current literature, that it is unwise to try to preserve the reproductive function in any case of genital tuberculosis. Also, the menstrual function is likely to be a liability because of the frequency of exacerbations during the menses and the high incidence of menstrual abnormalities.

#### Result of Treatment

In Oscar Hagen's 98 cases treated at Gabbalsberg Hospital in Stockholm, in 20 years, 86 patients were operated on, the others were not being considered suitable for operation. Nineteen (4.6%) died. Of patients operated on, 67.5% were cured, and 20% improved. In 25% fistulae developed between intestine and operative wound.

In Guixa's 99 cases, surgical treatment was successful in 43. Post-operative mortality was about 10%. Roentgen therapy gave good immediate results in 9 of 11 cases.

In a series of 23 patients treated by J. F. O'Brien and M. K. Lawlor, over 8½-year period in patients with endometrial T.B., 17 patients in whom sterility was the primary complaint, remained apparently well just under observation, but in 5, local spread occurred which was treated by hysterectomy and bilateral salpingoophorectomy. One patient not operated on, died as a result of miliary spread.

Of 38 patients treated in a Danish hospital, 3 patients were treated by hysterectomy, 3 with X-rays and 32 with carbon arc light. Thirty-two patients were alive after 5 years. In 12 patients general symptoms appeared after discharge from the hospital. Five patients had a recurrence of the tuberculous process. Of 23 patients who had no

general symptoms after discharge, 4 had T.B. in other organs. Two of the 38 later gave birth to children.

Conclusion as to advantage of surgery put forth by Erich Glatthar are, that it prevents recurrence in many cases and shortens the period of treatment and disability. The greatest disadvantage is not so much the danger of fistulae formation, as the relatively high post-operative risks which, however, can be greatly reduced through careful diagnosis and cautious adherence to indications. Mortality ascribed to surgical intervention in Glatthar's cases was 14%.

E. Held concluded that removal of the uterus and adnexae yield excellent results. This must be done in many cases, because the uterus is involved in at least 2/3 of cases, and ovaries in about 1/3 cases. Unfortunately, few women who have or have had adnexal tuberculosis become pregnant, so saving the tubes is of little value.

#### Resume

1. Pelvic organs in genital tuberculosis are involved in the following order of frequency: fallopian tubes, uterus, ovaries, cervix, vagina and vulva. In other words, genital tuberculosis means, first of all, tuberculous salpingitis. The peritoneum is involved in 50-70% of cases.

2. Gross appearance often differs little from non-tuberculous salpingitis, and is not always recognizable to the naked eye.

3. It is usually secondary and is generally attributed to hematogenous infection.

4. In many cases the tube is distended with caseous material, so that it resembles a pyosalpinx.

5. Adhesions surround the tube and bind it to adjacent viscera.

6. More frequently peritonitis are secondary to tuberculosis of the tube. In some cases it is possible that the tube is infected from peritoneum.

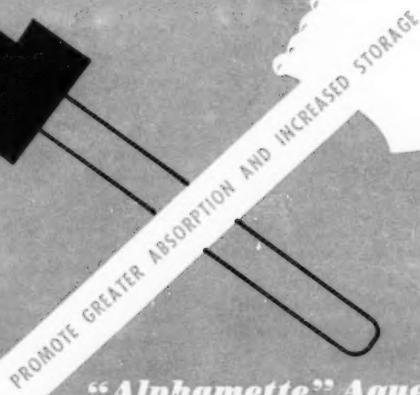
7. Removal of diseased tubes may promote recovery from the peritonitis.

#### References

- J. Obst. & Gynaec. British Empire, 54: 636-641, Oct., 1947.
- Gynaecology J., 124: 321-338, Dec., 1947.
- Nord. Med., 31: 2197-2200, Oct. 31, 1947.
- Am. J. Obst. & Gynaec., 55: 953-960, June, 1948.
- Gynaec. & Obst., 47: 27-41, 1948.
- Gynaecology J., 123: 319-344, May, 1947.
- J.A.M.A., 134: 941, July, 1947.
- American J. Obst. & Gynaec., 53: 405-418, March, 1947.



New  
**WATER-DISPERSIBLE VITAMIN DROPS**  
for Infants and Young Children



**"Alphamette" Aqueous - No. 929**

*Ayerst*

Each drop contains approximately:  
Vitamin A ..... 1,000 I.U.  
Vitamin D ..... 500 I.U.  
In bottles of 8, 15 and 30 cc. with dropper.  
The average dosage is 2 drops daily.

**"Supplavite" Drops - No. 931**

The average daily dose of 10 drops (0.6 cc.) provides approximately:

Vitamin A .....	5,000 I.U.
Vitamin D .....	1,000 I.U.
Ascorbic Acid .....	50.0 mg.
Thiamine .....	1.5 mg.
Riboflavin .....	1.0 mg.
Niacinamide .....	20.0 mg.
Pyridoxine .....	1.0 mg.
Calcium d-Pantetheate .....	5.0 mg.
Mixed Natural Tocopherols (as Antioxidant) .....	2.0 mg.

In bottles of 8, 15 and 30 cc. with dropper.

"Alphamette" and "Alphamette" Liquid are also recommended sources of vitamins A and D; "Supplavite" Liquid, "Supplavite" Tablets and "Supplavite" with Minerals provide multivitamin supplementation.

**Ayerst, McKenna & Harrison Limited**

*Biological and Pharmaceutical Chemists*

MONTRAL, CANADA

An extensive bibliography testifies to the outstanding advantages of treating menopausal symptoms with "Premarin".

Prompt symptomatic improvement is usually experienced following "Premarin" therapy.

## "Premarin"

### at the menopause

Although "Premarin" is highly potent, it is exceptionally well tolerated and untoward side effects are seldom noted.

The sense of well-being which almost invariably follows the use of "Premarin", helps to restore the patient's confidence and normal efficiency.

"Ninety-five and eight-tenths per cent . . . obtained complete relief of symptoms . . . General tonic effects were noteworthy."  
Perloff, W. H.: Am. J. Obst. & Gynec., 58:684 (Oct.) 1949.

Ayerst

Supplied in tablets of 0.3, 0.625 (with or without  $\frac{1}{2}$  grain phenobarbital), 1.25 and 2.5 mg conjugated estrogenic substances (equine), or as liquid containing 0.625 mg. per teaspoonful.

AYERST, MCKENNA & HARRISON LIMITED  
Biological & Pharmaceutical Chemists  
Montreal, Canada





## Winnipeg Medical Society—Notice Board

K. R. Trueman, Vice-President

B. Dyma, Trustee

T. E. Holland, President

William J. Boyd, Treasurer

Sam. A. Boyd, Secretary

### Monthly Meeting

#### Monthly Meeting at St. Boniface Hospital Reported by F. G. Stuart, M.D.

The regular monthly meeting of the Winnipeg Medical Society took the form of a "hospital evening" at St. Boniface Hospital, Friday, Jan. 21st, 1950. This was the second of such meetings, the

first having been at the Winnipeg General Hospital a year ago.

The spacious Out-Patient Department building with its large auditorium provided ample accommodation for the twenty-two exhibits from various departments. These are briefly described as follows:



A Corner of the Exhibit Hall.

#### No. 1 Obstetrics

Dr. H. Guyot projected Kodachrome pictures of various abnormalities encountered in the newborn. These included spina bifida, meningoceles, hydrops, hydrocephalus, cleft palate, club feet, etc.

#### No. 2 Orthopedics

Bone changes in juvenile vitamin deficiencies and congenital syphilis were the subject of this exhibit by Dr. H. Funk. He featured a case of rickets in a six-year-old epileptic who was admitted to St. Boniface Hospital in December, 1949, with a pathological fracture of the humerus. The initial X-ray films showed generalized osteoporosis, widened epiphyseal lines and metaphyseal cupping indicating rickets. Films made after nearly four weeks of Vitamin D and dietetic therapy showed generalized restoration of mineralization and recalcification of the metaphyses. For contrast, two other cases were shown. One

was scurvy showing pathognomonic osteoporosis and the "corner" sign at the metaphyseal margins. The other was a case of congenital syphilis with marked periosteal elevation and translucent zones at the ends of the shafts. Penicillin effected a complete cure.

#### No. 3 Surgery

This was a graphic outline for the treatment of thermal burns by Doctors A. C. Abbott and E. W. Pickard. It was accompanied by a display of the materials used, which ranged from plain soap to metal foil. Kodachromes of a few treated cases were included.

#### No. 4 Surgery

Dr. L. D. Rabson used four very complete case histories as a basis for a consideration of the diagnosis of acute bowel obstruction. In each of these cases an unusual cause was found, i.e. impacted gall stone in ileum; incarcerated inguinal

hernia brought on by impaction of a fish bone in the herniated portion; ileal obstruction following the gulping of a large piece of an orange; and lastly a colic-colic intussusception in an adult. X-rays were included in the exhibit.

#### No. 5. Surgery

Nerve injury associated with thyroidectomy was the subject of this exhibit by Dr. R. O. Burrell. Using a large model of the larynx, he demonstrated the pathology occurring in injury to the superior laryngeal and recurrent laryngeal nerves. How the Brien-King and reverse Brien-King operations afforded relief in the latter instance was explained. Four cases were included.

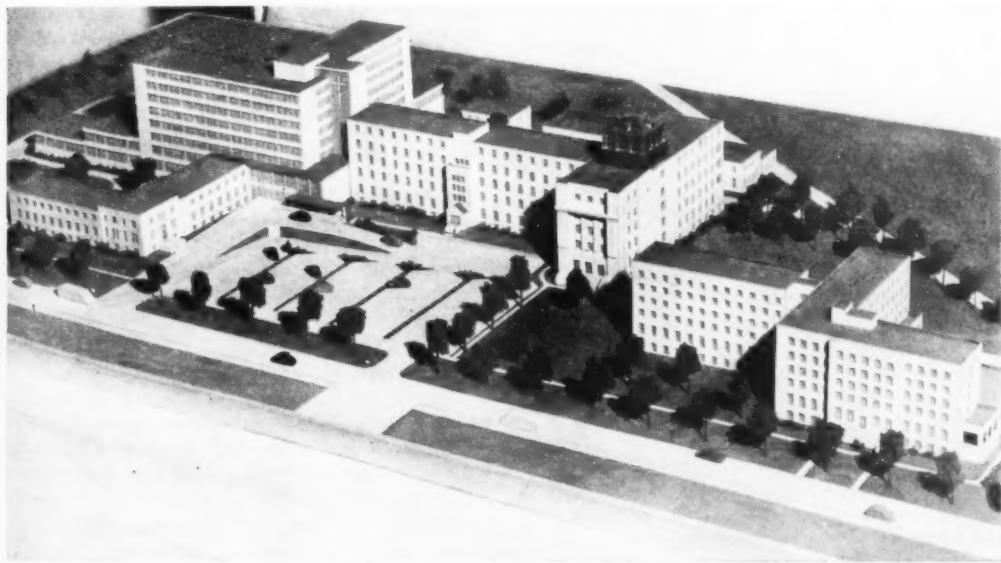
operation. This was appreciated by many whose notions of the operation had previously been very vague. It is apparently of value in otosclerosis. A successfully treated patient was present.

#### No. 9. Medicine

The weird gyrations of athetosis, the monotonous "pill rolling" of Parkinsonism and exasperating intention tremors were demonstrated by a group of four patients assembled by Dr. Graham Pincock.

#### No. 10. Hospital Administration

This was a scale model of the proposed new building programme for the enlargement of St. Boniface Hospital. It is a modern design by Green,



Model of Proposed Construction at St. Boniface Hospital.

#### No. 6. Anaesthesia

This department displayed a number of accessories and "gadgets" useful in the practice of modern anaesthesia. Doctors Bennett and Letienne were in attendance and answered many inquiries.

#### No. 7. Gynecology

That carcinoma of the uterine body can be successfully controlled by radiation when surgery is contra indicated for any reason was the theme of Dr. W. F. Abbott's exhibit. This includes intra uterine radium and external x-radiation. A five-year survival was to be expected in about half the cases so treated. Typical case histories were outlined.

#### No. 8. Oto-laryngology

This exhibit centred about a large size model of the inner and outer ear structures. Using this model, Dr. M. M. Pierce explained the fenestration

Blankstein and Russell. It will include new enlarged radiological, laboratory and operating facilities. There will also be additional wards including a specially designed children's ward occupying the entire top floor.

#### No. 11. Pathology and Medicine

Doctors J. Prendergast and J. L. Beckstead offered three interesting gross kidney specimens accompanied by microscopic sections. One was from a case of bilateral cortical necrosis of the kidney in a pregnant woman which was fatal. The second was bilateral necrotizing pyelonephritis in a mild diabetic which resulted in a fatal termination. The third was an unusual case of unilateral necrotizing pyelonephritis in a mild diabetic which was removed at operation.

#### No. 12. Pathology and Medicine

The method of prothrombin estimation was demonstrated by technicians under the direction

of Dr. Paul Green. Dr. Green discussed the significance of the test and the technique with many of the visitors. He also displayed a series of color microphotographs of poikilocytes.

#### No. 13. Obstetrics

Dr. Ross Willows showed the surgical specimen from an interesting case. This was a uterus which ruptured in the eighth month of pregnancy. This patient was admitted with severe right sided abdominal pain of a few hours duration. She was also diabetic and was in acidosis on admission. After control of the latter, a hysterectomy was performed. The foetus and placenta were found free in the abdomen accompanied by considerable blood. The patient made an uneventful recovery.

Dr. Willows has also studied Caesarean Section as done at St. Boniface Hospital over the past five years and the results were displayed. The incidence was almost 1% of total deliveries and was for disproportion in three-quarters of the cases. The foetal mortality was about 10% and the maternal about 1%.

Also available at this exhibit were a chart of obstetrical statistics at St. Boniface Hospital for the past five years. The maternal death rate was 0.7 per 1,000 births in contrast to 1.52 per 1,000 births for the province as a whole.

#### No. 14. Medicine

Dr. A. Hollenberg presented a 26-year-old male whom he has followed for twenty years. This patient has chronic nephritis dating from a severe attack of chickenpox at the age of 6. He is now suffering from failing vision and hypertension. Many of the visitors took advantage of the opportunity to observe the fundi where evidence of retinal haemorrhage could be seen.

#### No. 15. Medicine

The features of neurosyphilis were summarized on charts by Dr. J. C. Hossack. Included in this exhibit was a patient who showed signs characteristic of tabes dorsalis.

#### No. 16. Endoscopic Clinic

Dr. D. S. McEwen's collection of retrieved foreign bodies from the trachea and oesophagus featured this display. He discussed the indications for bronchoscopy with several of the visitors.

#### No. 17. Orthopedics

The contrast of the prognosis for osteomyelitis prior to and since the introduction of antibiotics was emphasized by case histories and x-rays presented by Doctors K. C. McGibbon and W. A. MacKinnon. The optimistic outlook with modern treatment was made quite clear. Such treatment consists of penicillin, fomentations, needle aspiration when abscess points, avoidance of incision, and finally sequestrectomy.

Dr. MacKinnon showed a case of fracture-dislocation of the shoulder which was successfully treated.

#### No. 18. St. Boniface Sanatorium

This exhibit occupies the west side of a 36-foot x-ray illuminating unit situated in the centre of the auditorium. Dr. A. C. Sinclair and his associates showed x-rays and case histories to demonstrate the efficiency of streptomycin in the treatment of tuberculosis.

#### No. 19. Radiology and Cardiology

On the east side of the same unit, Dr. F. G. Stuart assembled a series of 30 x-ray films depicting the appearance of the heart in rheumatic, coronary, hypertensive and syphilitic heart disease. In collaboration with Dr. L. R. Coke an attempt was made to emphasize the limitations and advantages of the application of radiology to cardiology.

#### No. 20. Ophthalmology

Dr. R. M. Ramsay and Dr. S. McKenty brought in several patients showing interstitial keratitis and optic atrophy from the Eye Clinic. Of particular interest was a case of a boy complaining of blindness and proptosis of one eye. X-ray films showed marked increase in the size of the optic foramen. At operation a tumor of the optic nerve was found. This was identified as a neurocytoma on microscopic examination.

#### No. 21. Venereal Disease Clinic

Dr. K. J. Backman, in a series of charts and posters brought out salient points in V.D. treatment and control. In conjunction with this exhibit Dr. S. Vaisrub showed patients with cardiovascular syphilis.

#### No. 22. Pediatrics

Dr. Graf and associates featured a case of an Indian infant with congenital syphilis and acquired tuberculosis. The bones showed extensive tuberculous changes in the form of localized central destruction with cortical expansion. Gumma formation of lues was found in the liver at post mortem. Autopsy specimens were available for correlation with the x-rays in the case.

Three cases of paroxysmal tachycardia in infants formed another portion of the Pediatric contribution. These cases were extremely ill and in failure. They were successfully treated with Digitalis nativille and have remained well.

The third portion consisted of 3 cases of bronchiolitis. This condition was contrasted with acute laryngo-tracheo-bronchitis. In both conditions the victims are quite sick and x-ray parenchymal changes may be very insignificant. Tracheotomy is of value in laryngo-tracheo-bronchitis, but useless in bronchiolitis. Humidified oxygen, sulpha, streptomycin and aureomycin as well as good nursing constitute the treatment.

**No. 23. Dermatology**

Doctors H. Hurst and K. Davidson presented four cases of atopic dermatitis. This is a condition of indefinite etiology which is especially prevalent during the winter. It is an erythematous scaly lesion with papule formation. It may go on to excoriation and lichenification. Chronicity is common, as is also poor response to treatment. The face, neck, popliteal and anticubital areas are the characteristic sites. It is aggravated by cold weather and improves in a warm, dry climate.

The evening was brought to a close by coffee and lunch provided by the Sisters of the Hospital.

The Programme Committee, consisting of Dr. F. G. Stuart, chairman; Doctors D. S. McEwen, Lehmann, Green, Beckstead, Stolar and DePape were in charge of arrangements. About 150 attended.

**Errata**

In Dr. F. G. Stuart's article, "The Value of Plain Abdominal Roentgenogram," February issue; the following references to the illustration on page 83, were inadvertently omitted.

**Key to Illustrations**

Figure 1: 1, gall stones; 2, renal calculus; 3, ureteral calculus; 4, vesical calculus; 5, prostatic calculi.

Figure 2: 1, calcified costal cartilage; 2, calcified lymph nodes; 3, phleboliths; 4, iliac artery calcification; 5, calcified fecalith in tip of appendix.

Figure 3: 1, calcific deposit in liver; 2, calcified hydatid cyst; 3, calcific deposit in adrenal gland; 4, calcified splenic vessels; 5, calcific deposits in spleen; 6, calcified fibroid.

**Hospital Clinical Reports****Winnipeg General Hospital****A Case of Ewings Tumor of Bone**

Dr. A. Gibson

A case of 13-year-old white male, who complained of a lump on the lower part of his left thigh, of short duration. There was a history of injury to the leg—he was hit by a baseball in May, 1946. There was a palpable tumor on the lower part of the left thigh. X-ray showed some cortical destruction and a soft tissue swelling, with some calcium and radiating spicules. The diagnosis rested between Ewings Tumor of Bone and Osteogenic Sarcoma. An amputation was performed on Dec. 24, 1949. The Pathology Report was Ewings Tumor.

Dr. Gibson presented an analysis of 91 cases of Ewings Tumor at the Memorial Hospital, New York. There were 69% males and 31% females. Average age was 15 years. Site was Femur in 23 cases; Tibia, 11 cases; Ribs, 15 cases. Pain was present in 44; deformity and swelling 63; disability in 31; fever over 100°-15. History of trauma, present in 35; denied in 15; no record in 41. Treatment: Amputation, 18; partial resection, 15; x-radiation, 69; radium, 32.

Recurrence or metastases: No information, 11; local recurrence, 18; free of metastases, 6; metastases, 74; to lungs, 47; to skull and scalp, 32; to vertebrae, 21.

End results: 12 out of 86 alive, 7 with metastases, 5 with no metastases; 1 patient was alive with no recurrence after 14 years; 73 deaths. Five-year survival: 3 patients. They concluded uniformly poor results with any treatment.

**A Case of Intra-mural Hematoma of the Duodenum**

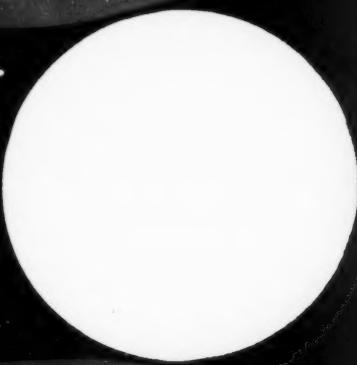
Dr. C. Clark

A case of a 15-year-old white male, who had been hit in the R.U.Q. of the abdomen, 2 weeks prior to admission to hospital. He had felt well until 48 hours prior to admission, when he developed a sudden pain, increasing in intensity to the right and above the umbilicus, with incessant vomiting. On admission he was in marked acidosis. Vomitus contained no bile. WBC-13000, urinalysis, neg. X-ray taken that day was neg. except for a fluid level in the stomach. X-ray repeated next day showed a dilated stomach with an increase in the fluid level. This was considered consistent with an obstructive lesion in the duodenum.

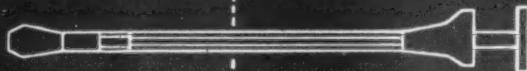
Operation was performed. The duodenum was found to be 4 times its normal size, and blackish-blue in color. There was no retro-peritoneal hematoma. About 500 cc of blood clot between the longitudinal and circular muscle coats. This was evacuated. The patient has had a fairly uneventful recovery.

3. Dr. Dorothy Barnhouse presented her impressions of medical practice in Eastern Centres. She briefly discussed her impressions of the Anaesthetists Convention in New York, and told of her visits to Hartford and Presbyterian hospitals. A very interesting discussion of her impressions gained while attending a Surgical Staff Monthly Meeting at the University of Pennsylvania Hospital in Philadelphia was then given.

# Simplicity



When the use of an occlusive diaphragm is not feasible anatomically, or is rejected by the patient, a simple method of high effectiveness is the intravaginal application of Ortho-Gynol vaginal jelly. Deposited high in the vagina with the Ortho applicator, Ortho-Gynol, by its optimal viscosity, adhesiveness and surface tension, spreads uniformly as a clinging layer over the vaginal mucosa and cervix; thereby producing an effective barrier. Involving a minimum of manipulation, this dependable method is readily acceptable to patients for reasons of simplicity.



whenever indicated—wherever prescribed

Entomology: 1. Ward,  
H. H. Jr.; Virginia M.  
Monthly 70:238, 1943

**Ortho**

PHARMACEUTICAL  
CORPORATION  
(CANADA) LIMITED  
TORONTO, ONT.

# Canadian Anaesthetists' Society

## Annual Meeting Tentative Program

### Western Division

### Winnipeg, March 23 - 24 - 25, 1950

The Manitoba Division of the Canadian Anaesthetists' Society will be the host to the other Western Divisions for their annual meeting to be held in Winnipeg on the 23rd, 24th and 25th of March. This will be the fifth meeting of western anaesthetists. The Manitoba Division held the first meeting in Winnipeg in the spring of 1946 and subsequent meetings were held in Edmonton in 1947, Regina in 1948, and Vancouver in 1949. Each

and every meeting has been a distinct success from a clinical standpoint as well as a social get-together and the coming meeting promises to be equal in every way to the previous meetings.

All in all a well-rounded, clinical, research and social programme is planned to entertain members of the Canadian Anaesthetists' Society and others interested in Anaesthesia who would care to attend these meetings.

#### Thursday, March 23rd

##### Morning

8.00 to 12.00 Clinical — Various Hospitals.

##### Noon

12.30 Clinical Luncheon, St. Boniface Hospital.  
Guest Speaker:

R. A. Gordon, M.D., Secretary-Treasurer,  
Canadian Anaesthetists' Society, Toronto.

##### Evening

Refreshments and Dinner, Fort Garry Hotel.

##### Afternoon

Rene Letienne, M.D., Chairman.

2.30 Subject to be announced.

R. D. Dripps, M.D., Dept. of Anaesthesia,  
University of Pennsylvania, Philadelphia.

3.15 Dynamics of Respiration.

Louis Cherniack, M.D.

#### Friday, March 24th

##### Morning

8.00 to 11.00 Clinical — Various Hospitals.

11.30 Visit New Maternity Wing,  
Winnipeg General Hospital.

##### Noon

12.30 Luncheon, Winnipeg General Hospital.  
Guest Speaker, R. D. Dripps, M.D.

##### Evening

8.00 Meeting — Winnipeg Medical Society.

Guest Speaker, R. D. Dripps, M.D.

##### Afternoon

D. C. Aikenhead, M.D., Chairman.

2.30 Recent Trends in Geriatric Surgery.  
Donaldia Huggins, M.D.

3.15 The Prediction of Results following  
Sympathectomies for Arterio-occlusive  
disease.

J. Doupe, M.D.

#### Saturday, March 25th

##### Morning

8.00 to 12.00 Clinical — Various Hospitals.

##### Noon

12.00 Luncheon — Deer Lodge Hospital.  
Guest Speaker, R. D. Dripps, M.D.

##### Afternoon

L. Loban, M.D., Chairman.

2.30 (a) Treatment of Anuria — Report of Cases.  
(b) Treatment of Low Back Pain by  
Intravenous Novocaine.

R. Letienne, M.D.

4.00 Isotopes Medicine.  
J. Gemmell, M.D.

#### Manitoba Health Officers' Annual Meeting

Tuesday, April 4th

Open Meeting Tuesday Afternoon

# Cafergone

(E.C. 110)

## Oral Migraine Therapy

► **CAFERGONE** is the first highly effective oral preparation providing rapid and sure relief to the migraine sufferer. Each tablet contains:

1 mg. ergotamine tartrate  
100 mg. caffeine (Free Base).

► . . . "Practically all of the patients in this series had previously used ergotamine tartrate to abort or relieve headache and they uniformly stated that E.C. 110 was more effective than ergotamine used alone" . . .

(Horton, Ryan & Reynolds, *Proc. Staff Meet., Mayo Clin.*, 23:105, 1948)

► . . . "Although E.C. 110 (CAFERGONE) was developed primarily for the relief of the migraine attack, it is uniformly effective and has a much wider range of usefulness in the relief of headache of all other types, especially typical and atypical histaminic cephalgia" . . .

(Hansel, *Ann. Allergy*, 6:155 — 161, 1949)

► . . . "CAFERGONE . . . definitely seems to be an excellent preparation to use to abort headaches, especially those of the migraine and histaminic cephalgia types" . . .

(Ryan, *Postgrad. Med.*, 5: 330, 1949).

*Literature and samples available on request.*



49-4

## SANDOZ PHARMACEUTICALS LTD.

391 ST. JAMES STREET WEST

MONTREAL, P.Q.

# American College of Surgeons Sectional Meeting Program

**Manitoba Officers:**  
**Gordon S. Fahrni**  
 Chairman  
**P. H. T. Thorlakson**  
 Secretary  
**O. S. Waugh**  
 Counsellor

**Fort Garry Hotel, Winnipeg**

**April 3rd, 4th, 1950**

This is a Sectional Meeting of two Provinces and six nearby American States.

**You Are Welcome**  
 A cordial invitation to attend is extended to all Physicians and Surgeons.

## Monday, April 3rd

### Morning

#### Fort Garry Hotel, Motion Pictures.

**8.30** **Malnutrition in the Hospital Patient.**  
 Eugene F. DuBois, M.D., New York;  
 Robert Elman, M.D., F.A.C.S., St. Louis; and  
 Herbert Pollack, M.D., New York.

**9.15** **Fractures: An Introduction.**

Harrison L. McLaughlin, M.D., F.A.C.S.,  
 New York.

(Sponsored by the American College of Surgeons and its Committee on Trauma, and made possible through a grant from the Johnson & Johnson Research Foundation.)

**10.00** **Scientific Session.**

**Arterial Lesions of the Extremities.**

Joseph M. Janes, Rochester, Minn.

**Non-penetrating Injuries of the Abdomen.**

F. H. Wigmore, Moose Jaw, Sask.

**Injuries to the Elbow Region.**

Angus D. McLachlin, London, Ont.

Edward T. Evans, Minneapolis, Minn.

(Subject to be announced).

**Noon**

**12.30** **Luncheon, Fort Garry Hotel.**

Followed by Discussion of Papers presented at the morning session.

**Afternoon**

**2.00** **Panel Discussions.**

**Caesarean Section and Uterine Prolapse (Panel)**

Moderator: Virgil S. Counsellor, Rochester, Minn.

Collaborators: W. F. Abbott, Winnipeg; Elinor F. E. Black, Winnipeg.

**3.45** **Intestinal Obstruction (Panel)**

Moderator: Charles W. McLaughlin, Jr., Omaha, Neb.

Collaborators: Charles W. Burns, Winnipeg; G. Gavin Miller, Montreal.

**Evening**

**8.30** **Symposium on Cancer.**

**The Incidence and Prevalence of Cancer.**  
 O. H. Warwick, Toronto.

**Melanomata.**

Arthur H. Wells, Duluth, Minn.

**Ovarian Tumors—Clinical and Physiologic Significance,**  
 Virgil S. Counsellor, Rochester, Minn.

## Tuesday, April 4th

### Morning

#### Fort Garry Hotel, Motion Pictures.

**8.30** **Surgical Anatomy of the Femoral Triangle.**  
 Conrad J. Baumgartner, M.D., F.A.C.S.,  
 Beverly Hills, California.

**8.50** **Injuries of the Peripheral Nerves.**

Loyal Davis, M.D., F.A.C.S., Chicago, and  
 George Perret, M.D., Chamblee, Georgia.  
 (Sponsored by the American College of Surgeons and its Committee on the Nervous System, and made possible through a grant from the Johnson & Johnson Research Foundation.)

**9.30** **We Speak Again. The Rehabilitation of Laryngectomized Patients.**  
 LeRoy A. Schall, M.D., F.A.C.S., Boston.

**Papers on Trauma "Immediate Care of the Injured"**

**10.00** **Scientific Session.**  
**Gastric and Intestinal Intubation.**  
 G. Gavin Miller, Montreal.  
**Stenosing Tenosynovitis at the Radial Styloid Process.**  
 Paul R. Lipscomb, Rochester, Minn.  
**Transthoracic Esophageal Surgery.**  
 Charles B. Puestow, Chicago, Ill.  
**Topic on Urology, "The Disease of the Scrotum and Contents."**  
 Oliver E. Sarff, Duluth, Minn.

**Noon**

**12.30** **Luncheon, Fort Garry Hotel.**

Followed by Discussion of Paper presented at the morning session.

**Afternoon**

**2.00** **Panel Discussions.**

**Surgery of the Hand.**

Moderator: Paul R. Lipscomb, Rochester, Minn.

Collaborators: Edward T. Evans, Minneapolis, Minn.; Mark H. Tibbets, Duluth, Minn.

**3.45** **Surgical Lesions of the Stomach.**

Moderator: Charles B. Puestow, Chicago, Ill.  
 Collaborators: Paul H. T. Thorlakson, Winnipeg; Robert Hebbel, Minneapolis.

NOW...in Chemotherapy of tuberculosis

3

POTENT AGENTS

Streptomycin  
Calcium Chloride Complex  
Merck

PAS  
Para-Aminosalicylic  
Acid Merck  
(and the Sodium Salt)

Dihydrostreptomycin  
Sulfate  
Merck



MERCK & CO. LIMITED  
Manufacturing Chemists  
MONTREAL • TORONTO • VALLEYFIELD

Merck Antitubercular Agents

Streptomycin  
Calcium Chloride Complex  
Merck

PAS  
Para-Aminosalicylic  
Acid Merck  
(and the Sodium Salt)

Dihydrostreptomycin  
Sulfate  
Merck

# University of Manitoba, Faculty of Medicine REFRESHER COURSE PROGRAM

Arranged by the Committee on Post Graduate Studies

Winnipeg, April 5th, 6th and 7th, 1950

## Guest Speakers

Dr. A. W. Adson, Rochester, Minn.,  
Professor of Neuro Surgery,  
Mayo Foundation.

Dr. Alton Goldbloom, Montreal,  
Professor of Paediatrics,  
McGill University.

## Enroll Early

The accepted registration is limited.  
Should you plan to attend, early  
enrollment is recommended. Applications  
for registration will be  
accepted in the order in which they  
are received.

### Registration

Tuesday Afternoon, April 4th

## Wednesday, April 5th

### Morning

St. Boniface Hospital.  
9.00 Symposium on Peptic Ulcer.  
Drs. I. Pearlman, J. G. Pincock, R. D. Burrell,  
S. S. Peikoff.  
Prostatism.  
Dr. Earl Stephenson.  
The Heart in Obstetrics.  
Dr. L. R. Coke.  
Anemia—An Important Symptom.  
Dr. Paul Green.

### Afternoon

2.15 Medical College.  
1. Diagnostic features in Intra-Spinal lesions.  
Dr. A. W. Adson, Rochester, Minn.  
2. Subcutaneous Abdominal Injuries.  
Dr. C. W. Burns.  
3. Diagnosis and treatment of Common  
Rectal and Peri-anal lesions.  
Dr. P. H. T. Thorlakson.  
4. Emergency Treatment of Compound  
Fractures,  
Dr. E. S. James.

### Noon

12.15 Luncheon at St. Boniface Hospital.  
1.00 Discussion of Hip Joint Disease in the First  
Decade of Life.  
Dr. Henry Funk.

### Evening

8.15 Winnipeg Medical Society.  
Dr. A. W. Adson, Rochester, Minn.  
(Subject to be announced).  
Dr. Alton Goldbloom.  
(Subject to be announced).

## Thursday, April 6th

### Morning

Winnipeg General Hospital.  
9.00 Atopic Dermatitis.  
Dr. George Brock.  
Deafness.  
Dr. W. Alexander.  
Surgical Case Presentations.  
Dr. C. W. Burns and Staff.

### Afternoon

2.15 Medical College.  
1. Symposium on Psychiatry in Medicine.  
Dr. Gilbert L. Adamson and panel.  
2. Penicillin Resistant Staphylococcal  
Infections.

### Noon

12.15 Luncheon at Winnipeg General Hospital.  
1.00 Discussion of ACTH and Cortisone.  
Dean L. G. Bell.

### Evening

#### Banquet at Fort Garry Hotel.

To which all members of the course are  
invited.

## Friday, April 7th

### Morning

Children's Hospital.  
9.00 Clinical Program.  
Dr. Bruce Chown and Staff.

### Noon

12.15 Luncheon at Children's Hospital.  
1.00 Panel Discussion.  
Guest Speaker:  
Dr. Alton Goldbloom, Montreal.

## Medico-Historical

J. C. Hossack, M.D., C.M. (Man.)

### Knowledge at First Hand

If these papers are of any use, it will be in confirming in the old, and impressing on the young practitioners of the art of healing, the importance of knowledge at first hand: of proving all things, and holding fast only that which is good; of travelling through life and through its campaigns, as far as can be, like Caesar—relicts impediments—neither burdened overmuch with mere word-knowledge, nor led captive by tradition and routine, nor demoralized by the pestilent lusts of novelty, notoriety, or lucre.

This is one great difficulty of modern times; the choosing not only what to know, but what to trust; what not to know, and what to forget. Often when I see some of our modern Admirable Crichtons leaving their university, armed cap-a-pie, and taking the road, where they are sure to meet with lions of all sorts, I think of King Jamie in his full armour—"Naebody daur meddle wi' me, and," with a helpless grin, "I daur meddle wi' naebody." Much of this excess of the material of knowledge is the glory of our age, but much of it likewise goes to its hindrance and its shame, and forms the great difficulty with medical education. Every man ought to consider all his lecture-room knowledge as only so much outside of himself, which he must, if it to do him any good, take in moderately, silently, selectly; and by his own gastric juice and chylopoietics, turn, as he best can, in *succum et sanguinem*. The muscle and the cineritious matter, the sense and the power, will follow as matters of course.

And every man who is in earnest, who looks at nature and his own proper work, with his own eyes, goes on through life demolishing as well as building up what he has been taught, and what he teaches himself. He must make a body of medicine for himself, slowly, steadily, and with a single eye of the truth. He must not on every emergency run off to his Cyclopaedias, or, still worse, to his Manuals.

For in physic, as in other things, men are apt to like ready-made knowledge; which is generally as bad as ready-made shoes, or a secondhand coat.

Our ordinary senses, our judgment and our law of duty, must make up the prime means of mastering and prosecuting with honour and success, the medical, or indeed any other profession founded upon the common wants of mankind. Microscopes, pleximeters, the nice tests of a delicate chemistry, and all the transcendental apparatus of modern

refinement, must always be more for the few than for the many. Therefore it is that I would insist more and more on immediate, exact, intense observation and individual judgment, as the mainstays of practical medicine. From the strenuous, life-long, truth-loving exercise of these, let no amount of science, however exquisite, decoy the student; and let him who has then, not greatly long after, as he will not greatly miss, these higher graces of the profession. What will make a valuable physician or surgeon now, and enable him when he dies to bequeath some good thing to his fellow-men, must in the main be the same as that which made Hippocrates and Sydenham, Baillie and Gregory, what we glory and rejoice to think they were.

Therefore, my young friend, trust neither too much to others, nor too much to yourself; but trust everything to ascertained truth to principles; and as chemists can do nothing without a perfect balance, so see to it that your balance, that weighing faculty which God has given you, is kept true—in a state, as Locke would say, of "absolute indifference," turning only to the touch of honest weight. See that dust does not gather on its agate plate and studs, clogging its free edge. See that no one loads it, that you don't load it yourself—for we are all apt to believe that which we desire—and put down its results, as on soul and conscience, at all hazards letting it tell the truth, the whole truth, and nothing but the truth.

One can fancy the care with which such men as Newton, Bishop Butler, Dr. Wollaston, or our own Faraday, would keep their mental balance in trim—what a sacred and inmost place—away from all "winds of doctrine," all self-deceit and "cunning craftiness," all rust, all damp, all soiling touch, all disturbing influences, acting as truly as anything either of the Oerlings, or Staudinger, or the exquisite Bianchi could turn out—turning sweetly and at once, as theirs do, for the big weights with the 1/500th, and with small with the 1/6000th of a grain. And to keep up our joke, we need not be always pondering; we should use what the chemists call the arrestment, by which the balance is relieved and rests. We will weigh and judge all the better that we are not always at it; we may with advantage take a turn at rumination, contemplation, and meditation, all different and all restful, as well as useful; and don't let us out of idleness or super-consciousness take to everlasting weighing of ourselves.

Dr. John Brown, "Horae Subsecivae."



# No Longer FOR MEN ONLY

Androgens can no longer be regarded merely as "Male" Sex Hormones in the original narrow sense of the term.

Modern clinical experience has so expanded their application that today PERANDREN\*, METANDREN\*\* and METANDREN LINGUETS\*\*\* are being effectively employed both in a variety of purely gynaecological conditions and in affections common to both sexes.

In the female, for instance, testosterone has been described as "a third weapon for the treatment of breast cancer"<sup>1</sup>; while it has been successfully used for both men and women in such varied conditions as *angina pectoris*<sup>2</sup>, mental depression<sup>3</sup> and pre-senile and senile dermatoses.

Wherever testosterone therapy is indicated, the physician can prescribe PERANDREN, METANDREN or METANDREN LINGUETS with the fullest confidence that they are the most efficient, injectable, oral and sublingual Androgens available.

## **Perandren\*** **Metandren\*\***

TABLETS: for ingestion

LINGUETS: for sublingual therapy (© 1957, M. Regd.)

1. European Trade Committee, Council on Pharmacy and Chemistry, JAMA, 140, 1218, 1948.

2. Lester, J. A. J. Clin. Endo. 8: 549, 1946.

3. Abrahams and Thomas, New Eng. J. Med. 239: 1036, 1948.

**Ciba**

COMPANY LIMITED MONTREAL

*In Balance*



**Pyribenzamine\***, of all the antihistaminics

available, achieves a unique balance between high therapeutic efficiency on the one hand, and a low incidence of side effects on the other.

Its effectiveness in a wide and ever increasing number of indications is attested to by over 350 published medical reports covering thousands of cases. Yet there is general agreement <sup>1,2,3</sup> that 75% of patients can take PYRIBENZAMINE without any side reactions whatever, while in the majority of those who do develop symptoms, the manifestations are mild.

It is only natural then, that Ciba's promotion and distribution of PYRIBENZAMINE should be balanced too. PYRIBENZAMINE itself is never advertised in the public press or on the radio. Yet every new and clinically proven indication for its use is quickly brought to the attention of the one man best qualified to assess its value, the Canadian physician and to the one man best qualified to distribute it conscientiously, the Canadian pharmacist.

## **Pyribenzamine\***

\*Ciba's brand of tripeptenamine hydrochloride.

**Ciba** COMPANY LIMITED MONTREAL

References:—1. Arbesman, C. E., Koepf, G. F., and Lenzer, A. R.: J. Allergy, 17: 275-83, 1946. 2. Friedlander, A. S., and Friedlander, S.: North End Clin. Quarterly, 7: 14-18, 1946. 3. Feinberg, S. M., and Friedlander, S.: Am. J. Med. Sci., 213: 58-60, 1947.

**EDITORIAL**

J. C. Hossack, M.D., C.M. (Man.), Editor

**Work for the M.M.S.**

The circular letter which you recently received from Dr. McFarland proves how important it is that each one of us become active propagandists for our own plan—the M.S.S.

When a layman has already some sort of protection it is difficult to urge him to subscribe to another. Therefore the task of inducing general membership in the M.M.S. becomes harder when a community has been well sold on the advantages of policies issued by private companies. Yet in more ways than one it is desirable that the scheme which we initiated and have put into successful practice should be the universal one throughout the Province.

Our own plan has, first of all, the advantage of being our own plan, fair to us, and very fair to our patients. Moreover we look upon it as the basis for any National Plan that may later come into being. But it will not sell itself. If an insurance agent, eager to earn a commission, has glibness and selling technique for advantages, the doctors have the greater advantage of interest in their patients and contact with those who have immediate medical expenses to meet.

It is not difficult to urge the sick or convalescent to protect themselves for the future. In every doctor's office there should be literature which the patient can read at leisure, and in every doctor's office, too, there should be a salesman in the person of the doctor himself.

**Medical Week**

Every week is medical week in Winnipeg but the week of April 3rd to 7th will be a medical week extraordinary. On the third and fourth of the month there will be a regional meeting of the American College of Surgeons whose meetings every doctor is invited to attend. On April 4th the Health Officers of the Province will have their annual meeting and from April 5th to 7th inclusive the Post-graduate course will be conducted.

A good attendance at meetings and scientific sessions always brings out the best of the speaker or demonstrator. Naturally, then, those concerned with the above affairs are anxious to get top attendance. The plans are not fully completed but are well advanced. The "Medical Week" will be a profitable time to visit us, so why not plan now to attend.

Just before the preceding meetings are held, Winnipeg will play host to the members of the Canadian Anaesthetists' Society when they hold their annual meeting on March 23, 24 and 25. Surgeons are specially invited to attend these meetings.

**BOOK REVIEW**

As knowledge widens and the demand for technical skill increases, specialization is inevitable. This book has been written with the object of correlating the many branches into which the practice of medicine is becoming divided. A deliberate effort is now needed if the integration of medicine is to be successfully maintained.

Medical education follows unthinkingly in the wake of hospital organization, and is becoming a systematic passage through a succession of special departments. This tendency is reflected in medical text-books. The latest edition has grown out of all proportion to its original parent, and has long ceased to reflect the wisdom and experience of a single man. The text-book of today is either a compilation of second-hand facts or a symposium of disconnected subjects written by a panel of authors. Meanwhile the capacity of the human mind does not increase and keep pace with the advances in human knowledge. Memory is strained to breaking point. Principles are crowded out or buried under the sheer weight of accumulated facts. No attempt ever seems to be made to give an account of the nature of the patient or explain the real meaning of his disease.

This is not another text-book written to present all the facts or a new manual of clinical methods designed to instruct in various techniques. Rather, it is intended to correlate the facts; and, by cutting across the conventional boundaries which separate one branch of medicine from another, emphasize the general principles underlying medicine as a whole. This book is intended to inculcate an attitude of mind. It is written to prevent facts which could be deduced from principles being committed to memory unnecessarily. I have deliberately tried to present the whole of medicine in such a manner as to make the reader think, and have intentionally avoided classifying my subject-matter in a way in which it could be more easily remembered. No apology is made for a genuine effort to infuse a corrective long overdue into that dangerously over-complicated prescription which is administered to the would-be doctor in the present day. Whether I have succeeded is another matter. But I do feel justified in making the attempt after twenty-six years spent in the practice of medicine and in teaching physiology and clinical medicine to pre-clinical, clinical and post-graduate students.

This book has been written for the medical reader regardless of the particular stage of his career. It attempts to provide a framework on which a knowledge of medicine can be built by self-education as experience widens. Each chapter is self-contained. They need not necessarily be read consecutively. The first attempts a synthesis

of the pre-clinical subjects, as at present taught, into one unified conception of the nature of body and mind as the essential prelude to the study of clinical medicine. The two chapters on symptoms and signs are mainly intended for the beginner. They may appear superficial and tedious to the more experienced reader, who is asked to remember that they are illustrative only, written to inculcate the right attitude of mind while taking the history and examining the patient. Like the first chapter they may prove of some interest to the reader who has not been taught to think along these lines before. The next three chapters are more difficult, and they will only be understood by the more advanced student or post-graduate with some experience of practice. The second volume is based on the same principles, and applies in practice the concept of medicine outlined in Volume I. I hope that both volumes may also be of some help and value to those engaged in teaching clinical medicine to undergraduate and post-graduate students.

Throughout this book I have adopted a more philosophical attitude to the problems of medical practice than is usual in this age of material progress, mechanical invention, disillusionment and lack of faith. For as medical knowledge has widened and specialization in medical practice has extended, the power of medicine has increased, and, to continue to adapt the words of Dunning's famous motion in the Commons, is increasing and seems likely to increase still further. The opportunity is great. But there is always danger in power, and if this increasing power of medicine is to be used to the best advantage, medicine must never cease to adopt a philosophical attitude to human life. As a Science medicine deals with the physical aspects of disease. As an Art it handles all the complexities of the human mind and the many shades of human personality. Medicine cannot wait until science catches up, and again and again it is necessary to act on empirical knowledge and experience destitute of scientific backing. Again and again it is necessary to take a decision—to adapt Kant's definition of faith—on the basis of knowledge sufficient for action but insufficient to satisfy the intellect. Many of the problems of life which confront the practitioner are ethical or moral, and lie entirely outside the boundaries of applied science. Medicine practising in this field of human experience can claim, and always will claim, to some extent at least, a place in the distinguished company of Art.

Medicine is indeed compelled to adopt a practical attitude to the unknown. It has been impossible to escape the body-mind relationship, or avoid other theoretical or semi-philosophical problems. I have endeavoured to state current opinion fairly or point out the opposing views. Space alone, quite apart from lack of knowledge, would have

made it impossible to marshal all the evidence on the two opposing sides. But I have not attempted to conceal my own opinions for what they are worth. To do so would have been to write a washy and anaemic book.

Medicine, by A. E. Clark-Kennedy, M.D., F.R.C.P., Fellow of Corpus Christi College, Cambridge; Physician to the London Hospital and Dean of the Medical School. 2 Vols. \$8.50. Macmillan Co. of Canada Ltd.

The above is from the preface to Clarke-Kennedy's "Medicine"—a two volume work totalling 894 pages. From the quotation the reader will gain an impression of the purpose of the volumes and will also realize how readable they are.

The arrangement as well as the handling of the subject is unusual as the list of chapter headings will illustrate. There are: 1, Body and Mind; 2, Symptoms; 3, Symptoms and Signs; 4, Heredity and Environment; 5, Reactions of the Body and the Mind; 6, The Nature of Disease; 7, Clinical Diagnosis; 8, Special Investigations; 9, Disturbance of Function; 10, Reactions of the Mind; 11, Pathological Processes; 12, The Practice of Medicine.

The sub-headings of two of the chapters will further illustrate the method of consideration. These for chapter 7 are: I, The urgent case, The accident, Unconsciousness, Severe pain, High fever, Intense dyspnoea, Profound anaemia, Mental breakdown. II, The easy case, The obvious cause, The certain symptoms, The convincing signs. III, The difficult case, The disorder of function, The pathological Process, and for chapter 9: I, Principles in treatment; II, Failure of function, Respiratory failure, Heart failure, Circulatory failure, Renal failure, Failure of blood formation, Failure of digestion and absorption, Metabolic failure, Failure of internal secretion, Failure of movement and sensation. III, Overaction of function, Internal secretion, External secretion, Blood formation, Blood destruction. IV, Protective reactions, Fever, Cough, Vomiting and diarrhoea. V, Disorder of function, Constipation, Bronchial spasm, Vasoconstriction, Fits, High blood pressure, Raised intracranial pressure, Irregularity of menstruation. VI, Abnormal stimulation of function, Irritation, Sleeplessness, Pain, Summary.

Stress is laid upon the Art of Medicine although, as would be expected, the Science of Medicine is fully dealt with. The last chapter "The Practice of Medicine" deals with the doctor, the family, the State, the new-born, the children, the adolescents, the adults, the old and the dying, and ends with a discussion on the interpretation of life. Readers in all grades of medical studentship will find here what may be called a spiritual infusion into their studies and practice. It is illuminating and thought inspiring and for these purposes alone should be profitable to all who are preparing for, or are already engaged in, medical practice.

## OBITUARIES

---

### Dr. W. Fulton Gillespie

The recent deaths of two Edmonton medical men, Dr. W. Fulton Gillespie and Dr. Egerton L. Pope, bring much regret to Manitoba medical circles where both were widely known.

As Professor of Surgery at the University of Alberta, Fulton Gillespie paid frequent visits to surgical meetings and usually stayed off at Winnipeg when passing through the city. At an annual meeting of the Manitoba Medical Association he contributed two valuable papers, and at an open meeting in the Winnipeg Civic Auditorium he gave an address which with its mixture of humour and knowledge admirably suited the occasion. He had a capacity for making warm friends and his passing at a comparatively early age is a great loss to western Canada.

### Dr. Egerton Pope

Egerton Pope was even better known since he practiced in Winnipeg from 1907 to 1923 as an internist. He was Associate Professor of Medicine in our university when he was called to Edmonton to be the first Professor of Medicine in the Uni-

versity of Alberta. He delivered one of the Gordon Bell Memorial Lectures in Winnipeg in December, 1932, after his move to Edmonton. In addition to his wide knowledge of medicine he was interested in art. The portrait of the late Dr. Harvey Smith in the Medical Arts club room is from his brush.

Dr. Gillespie and Dr. Pope were rare spirits. It was a privilege to have known them.

### Dr. John Angus MacDougall

Dr. John Angus MacDougall of Winnipeg, died on Feb. 21, in Montreal, following an operation. Born in Prince Edward Island in 1883, he came west in 1903 where he taught school for some years then entered Manitoba Medical College. He graduated in 1926 after serving his internship at St. Joseph's Hospital. Since that time he had been associated with the hospital and at his death he was superintendent and head of the medical department. As a Shriner he took an active part in raising funds for the Shriners' Hospital for Crippled Children on Wellington Crescent, Winnipeg. He was a member of Knox United Church. His wife and daughter survive him.

---

### The William Gibson Research Scholarship for Medical Women

Miss Maud Margaret Gibson has placed in the hands of the Royal Society of Medicine a sum of money to provide a Scholarship in memory of her father, the late Mr. William Gibson, of Melbourne, Australia. The Scholarship is awarded from time to time by the Society to qualified medical women who are subjects of the British Empire; and is tenable for a period of two years, but may in special circumstances be extended to a third year. The next award will be made in July, 1950, to date from October, 1950.

In choosing a Scholar the Society will be guided in its choice either by research work already done by her, or by research work which she contemplates. The Scholar shall be free to travel at her own will for the purpose of the research she has undertaken.

There is no competitive examination, nor need a thesis or other work for publication or otherwise, be submitted. The Society has power at any time to terminate the Grant if it has reason to be dissatisfied with the work or conduct of the Scholar.

Applications should be accompanied by a statement of professional training, degrees or diploma, and of appointments, together with a schedule of the proposed research. Applications must be accompanied by testimonials, one as to academical or professional status, and one as to general character. Envelopes containing applications, etc., should be marked "William Gibson Research Scholarship" and should be addressed to Mr. G. R. Edwards, Secretary, Royal Society of Medicine, 1, Wimpole Street, London, W.1., England, and be received not later than June 1st, 1950.

The approximate value of the Scholarship will be £200 per annum.

For prolonged  
effective blood levels

# LENTOPEN

300,000 units procaine penicillin-G per cc. in  
oil with aluminum monostearate.

1 cc. TUBEX AND 10 cc. VIALS

For high initial and  
prolonged effective blood levels

# ALL-PURPOSE LENTOPEN

400,000 I.U. per cc. (300,000 units procaine  
penicillin-G and 100,000 units soluble crystalline  
penicillin-G in oil with aluminum monostearate.)

1 cc. TUBEX

 JOHN WYETH & BROTHER (CANADA) LIMITED

Deposited Trade Mark

## SOCIAL NEWS

Reported by K. Borthwick-Leslie, M.D.

First of all, "Thank you" to Dr. Donald L. Wright, Dryden, Ont., for his thoughtfulness in writing me, in appreciation of my "Gossip." One receives so many criticisms that the odd compliment helps a lot. Incidentally the said Don—officially, Dr. Donald L. Wright, only son of Mrs. Wright and the late G. Leslie Wright, Winnipeg, is to be married on March 11th, at 3:30 p.m., in St. George's Anglican Church, to Flora Ellen Elsey, only daughter of Mr. and Mrs. Ernest Elsey.

Harold Hurst, M.D., M.Sc., announces the opening of his office, 511 Medical Arts Building, for the practice of Dermatology. Dr. Hurst has recently returned from a three-year Fellowship at University Hospital, Minneapolis. In 1949 he was made a Diplomate of the American Board of Dermatology and Syphilology. Complete with wife and two daughters they have chosen Winnipeg as their future home. Good luck and a happy future.

Congratulations to Dr. P. H. T. Thorlakson, who was named President of the Clinical Surgical Society of Western Canada, at the annual meeting in Edmonton. Dr. John Farr was named Social Secretary. Heaven help him! The next annual meeting will be in Winnipeg.

Congrats too, to Dr. C. E. Mather, who has been appointed assistant regional Medical Officer for the C.N.R. It seems a couple of years at least, since Cec survived my Steak and Kidney Pie, produced "en masse" for hungry students, on Sundays. Remember? Since then he graduated, was located in Wawanesa for years, took P.G. work in Industrial Medicine, and became associated with the C.N.R. in 1945. Must be the amino acids of the pies!

February 17, 1930, Dr. J. A. McTavish and Don McNab were the rinks representing Winnipeg at the Toronto Bonspiel.

February and March, 1950. The now famous McTavish, Jr., rink of Elmwood, after a spectacular performance here, has gone West as our representative. History repeats itself. The very, very best of luck and god curling to the boys.

Speaking of juniors, young Deane Hillsman isn't doing too badly. As a Freshman he was recently named Captain of the Dartmouth University swimming team. He has been smashing records of all Freshmen by doing the 150 yards individual medley in 1:42.5 as compared to 1:47.1; also the backstroke in 1:39.9. That's travelling. Dr. John, the father, is naturally "mighty proud."

Dr. and Mrs. Quentin Jacks are attending the meeting of the American Academy of General Practice in St. Louis. They will spend some time in Florida after the St. Louis meeting.

Dr. and Mrs. Walter Read, of Dynevor Indian Hospital, Selkirk, have returned from a month's vacation in the Southern States.

Dr. and Mrs. George Fairfield, of Portage la Prairie, left by plane last week to holiday in Montreal.

Correction! Dr. S. S. Peikoff has been appointed lecturer in Surgery for the Faculty of Medicine, U. of M. Not as quoted in the February issue.

Dr. and Mrs. W. G. Riddell and children, of Dryden, Ont., spent several days at Selkirk visiting Mrs. Riddell's mother, Mrs. Calder. They were en route to Chicago where Dr. Riddell will do P.G. work in surgery.

Sincere congratulations to Dr. A. D. MacLean, son of the late Dr. Neil John MacLean, who has been successful in the Primary F.R.C.P. (London, Eng.), examinations.

Welcome to our new arrivals:

Dr. and Mrs. Sam Kobrinsky, a son, Norman, brother to Charlie. Born Sept. 30, 1949. (Belated announcement, but Sam finally got around to it. That's when I was on holidays).

Dr. and Mrs. Glen Willson, Flin Flon, a son, Feb. 4, 1950.

Dr. and Mrs. W. Alexander, a daughter, Feb. 1, 1950.

Dr. and Mrs. D. D. Sturdy, a son, Ronald, at Climax, Sask., Jan. 27, 1950. Junior brother for Alan and David.

Dr. and Mrs. Gordon Smith, of Gladstone, Man., a daughter, Shelby Frances, Jan. 31, 1950.

Dr. and Mrs. M. K. Brandt, The Pas, Man., a son, Douglas Wayne, Feb. 1, 1950.

Dr. and Mrs. Fred H. Burgoyne, on Jan. 20, 1950, Frederick Hilaire, Jr.

Dr. and Mrs. A. J. Alcock (nee Lt. N.S. Sheila Late), a son, John Laurence, Feb. 19, 1950.

May I present my personal sympathy, as well as that of the Profession to Mrs. J. A. MacDougall, family and innumerable friends, on the loss of Dr. Jack MacDougall.

For the  
PEDIATRICIAN



# GETOL COMPOUND No. 18

A pleasantly aromatized compressed tablet indicated in the treatment of coryza, rhinitis with excessive secretions in infants and children. A analgesic, sedative, antispasmodic. Tablet is scored to facilitate reduced dosage.

**Each Compressed Tablet Contains:**

Cetol (Acid Acetylsalicylic)	2 gr.
Ephedrine Sulphate	1/24 gr.
Phenonyl (Phenobarbital)	1/16 gr.
Atropine Sulphate	1/5000 gr.

Cetol and Phenonyl are Registered Trade Marks

Professional Representative: Mr. J. R. Hope, 264 Lindsay Street, Winnipeg, Man.



**CHARLES R. WILL & COMPANY LIMITED**  
LONDON, CANADA

## COLLEGE OF PHYSICIANS AND SURGEONS OF MANITOBA

### Council Meeting

Winnipeg, Manitoba, October 19, 1949  
(Continued From February, 1950, Issue)

#### (k) Deanship of the Medical Faculty

The Chairman stated that a request had come from the President of the University of Manitoba, at the time of the May meeting, for a representative on a committee to choose a new Dean to replace Dr. Mathers. Since that time, Dr. Lennox Bell has been appointed Dean of the Medical Faculty, and has taken over office. He stated that one or two projects are under consideration, one of these a new building which will house the library and provide an auditorium for medical meetings.

### 3. Reports of officers and their consideration.

#### (a) Registrar's Report

It is with deep regret that the following list of deceased members is presented:

Daniel Baldwin, Benito; Leon Georges Benoit, Winnipeg; Fred Lindsay Burrows, Regina, Sask.; Robert Kennedy Chalmers, Minto; Stanley Gordon Chown, Winnipeg; William Alvin Cooper, Winnipeg; Alexander George Denmark, Devon, England; James Dunbar Duncan, Leaske, Sask.; Clarence Woods Johnston, Elkhorn; Manly Finkelstein, Winnipeg; John Alexander MacKenzie, Milwaukee, Wisconsin; Roy Carlisle McLaughlin, Beverley Hills, California; Campbell Hamilton Monro, Winnipeg; John Robert Warburton Nicholson, Winnipeg; Robert Francis Rorke, Winnipeg; Elizabeth Steele, Winnipeg.

(A period of silence was observed in memory of these doctors.)

The following are eligible for Life Membership under resolution of October, 1933:

Frank Aubrey Benner, Earl Stewart Bolton, James William Cairns, Charles Morley Clare, Murdoch Mackay, Condren Maurice Strong, David Victor Stewart Winkler.

In the future it is proposed to issue these Life Membership Certificates as the doctors become eligible.

During the year there have been:

- 1 special meeting of Council.
- 2 meetings of Discipline Committee.
- 6 meetings of Registration Committee.
- 1 meeting of Executive Committee.

During the year there have been: 70 applications for Student Registration of which 70 have been granted; 66 applications for Enabling Certificates of which 63 have been granted; 22 applications for Temporary Licences of which 22 have been granted (3 have been cancelled and 2 replaced by

Permanent Registration Certificates); 47 applications for Registration of which 47 have been granted.

Cash receipts at the Registrar's office are as follows:

Annual fees		\$1,328.00
Registrations	39 @ \$100.00 -	\$3,900.00
	8 @ 90.00 -	540.00
	2 @ 95.00 -	190.00
		4,630.00
Temporary Licences	11 @ 5.00 -	\$ 55.00
	11 @ 10.00 -	110.00
		165.00
M.C.C. Certificates	63 @ 5.00	315.00
G.M.C. Certificates	11 @ 5.00	55.00
Medical Student Registration	70 @ 1.00	70.00
Mailing lists of registered physicians		141.00
		\$6,704.00

Number of registrations—Forty-Seven (47).

Number of temporary licences—Twenty-two (22).

Number of registered doctors in the Province as of September 30, 1949:

	Perm.	Temp.	Total
Greater Winnipeg	515	13	528
Outside Winnipeg	222	11	233
	737	24	761

I would like to bring to attention of Council, a telephone communication which I had with the Minister of Health concerning an application which was not dealt with by the Registration Committee because a Certificate of Credit had not been secured. The Minister remarked that some changes might have to be considered so that fully qualified men, especially those in the Psychiatric field, might not be debarred from securing licence in Manitoba.

The latest list received from the Narcotic Control Division of the Department of National Health and Welfare, Ottawa, includes the names of three active and two former members of this College, to whom narcotics may not be dispensed before contact has been made with the Department. One name has been removed from the list.

The attention of Council is called to clarification of prescription drug order which appeared on page 478 of the Manitoba Medical Review for September, 1949. Recent revision of the food and drug regulations (PC 1536, 5 Apr., 49) clarifies the so-called prescription drug order which limits sale to the public of certain drugs to prescription only. A telephoned order does not constitute a prescription, but a pharmacist may now execute an order given over the telephone in an emergency for any of the drugs in question, provided he be supplied with a written prescription covering them within 24 hours.

In the food and drug regulations, a prescription is defined (A02016) as "a written order issued and



## NOW • • ADDED CONVENIENCE FOR THE PATIENT

The "RAMSES"\*\* "Tuk-A-Way Kit" provides added convenience for the patient, for tucked into this colorful, washable plastic kit she will find all the units essential for optimum protection.

The Tuk-A-Way Kit packs inconspicuously in the corner of a travelling bag or dresser drawer. It is available to patients through all licensed pharmacies.



*Julius Schmid (Canada) Ltd.*  
31 Teraulay Street  
TORONTO, ONTARIO

\*The word "RAMSES" is a registered trademark

signed by any person authorized to treat patients with drugs in any Province of Canada directing the dispensing of a certain amount of any drug or mixture of drugs to the patient named in such order."

No meeting of the Executive Committee has been called since the special meeting of Council in May. No provision exists in the Medical Act or By-laws as to the frequency with which such a meeting should be held, but the By-laws provide that the hour of meeting, if not 8.00 p.m., and matters referred to the Fee Taxing Committee shall be referred by the Executive Committee. It is possible that if the Executive Committee met more frequently a greater amount of current correspondence might be dealt with more expeditiously, the report of proceedings circulated to Council members and the acceptance of the report by Council shorten individual items now considered as Business Arising from Minutes. In that way, Council would be kept fully informed.

Respectfully submitted.

M. T. Macfarland, M.D., C.M.,  
Registrar.

**Motion:** "THAT the Registrar's report be adopted." Carried.

Dr. Macfarland explained that when a registrant reaches the age of 65 years and has practised 30 consecutive years in the Province, he is made a Life Member, and his fees are waived. Registrants whose fees are waived on account of overseas service in the First World War are also eligible for Life Membership when they reach the age of 65 and have practised 30 consecutive years.

**Motion:** "THAT Life Membership Certificates be issued to those registrants listed in the Registrar's report, and that in the future, Life Membership Certificates be issued in the usual way at the time the doctor becomes eligible." Carried.

Dr. \_\_\_\_\_ questioned whether the General Medical Council required a certificate from this College for anyone going over to register to do postgraduate work. He stated he had written to the Secretary of the General Medical Council requesting the requirements for registration, and they did not list any such certificate. He thought the annual receipt would be all that would be necessary.

The Registrar stated that the General Medical Council accepts for registration by reciprocity, graduates of the University of Manitoba, and Licentiates of the C.P. & S. of Manitoba. This certificate has been issued to any applicant on payment of the necessary fee, on the understanding that it does give first hand information from this College, under the seal of the College, to the Registrar of the G.M.C., that the physician is registered with this College. A graduate from the University of Manitoba may not be required to

present a certificate from this College, but registrants from any other University registered with the C.P. & S., Manitoba, would be required to present such a certificate.

The Registrar was instructed to write to the Registrar of the General Medical Council of Great Britain, inquiring whether a certificate is required from this College for reciprocal registration.

The Registrar stated that it would be helpful to have the Executive Committee meetings take place at regular times. He said that it would expedite matters considerably at Council meetings, if the Executive could discuss the matters previously and minutes were forwarded to members of the Council for perusal. He thought that not more than 4 meetings would be required since the summer months intervened between May and October. It was left to the discretion of the Registrar and President to call meetings of the Executive Committee when required.

**(b) Treasurer's and Auditors' Reports**

Your Treasurer begs to submit the following report for the year 1949. Herewith also submitted auditors report.

**Gordon Bell Memorial Account**

In November of 1948 there were called in at par \$20,000 of Dominion of Canada 4½% bonds so we had no recourse but to dispose of them. There were purchased in their stead \$20,000 Dominion of Canada 3% 1966 bonds at a cost of \$20,125.

As instructed by the College unused interest in the account has been used for the purchase of a further \$2,000 Dominion of Canada 3% 1966 bonds bringing the total of bonds in this account to \$25,000.

There have been no disbursements from the account and no meeting held as there have been no scholarship award requests submitted.

Interest earned in this account for the year was \$1,075.10 which will decrease since the 4½% bonds were called in. Interest balance on hand in this savings account at September 30 was \$817.48.

**Investment Trust Account**

As instructed by the College accumulated interest in this savings account has been used for the purchase in June of \$2,000 Dominion of Canada 3% 1966 bonds. This brings the total of bonds in this account to \$56,000.

Interest earned during the year totalled \$1,635.92 and \$1,680 can be expected annually from the bonds held. All bonds are Dominion of Canada 3% bonds.

**Current Account**

Total receipts in this account less refunds made of \$217.29 left a net total of \$6,486.71 which is approximately \$1,600 less than the previous year and \$1,200 less than 2 years ago. This decrease of income is due chiefly to fall off in post-war registrations. Cash on hand in the Current Account on September 30, 1949, was \$2,225.05.

# Increase your Prestige and Service



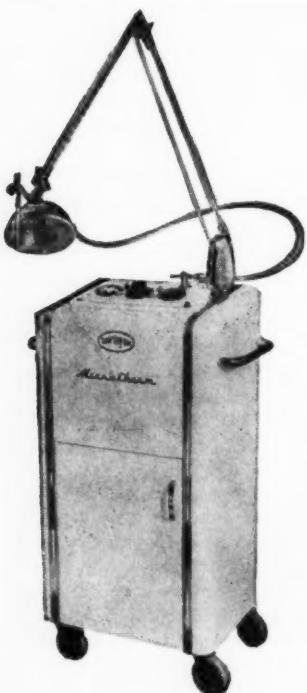
Diagnostic aids of  
Reliability and Quality

You get many extra benefits with the  
**SANBORN METABULATOR**

All controls on same operating level. Horizontal, continuous recording from large chart roll. Tracing always visible. Light swivelling telescopic arm provides quick easy adjustment of breathing tubes. Easily removed from cabinet for portable work.

For "direct writing" cardiograms . . .  
perfect efficiency with the  
**SANBORN VISO-CARDIETTE**

True rectangular coordinates; no curvatures of complexes or time lines. Independent synchronous time marker. Make timing (paper speed) check whenever you wish. Still faster galvanometer. Improved baseline steadiness despite voltage changes. Adjustment of writing pressure.



For patient comfort and safety . . .  
utmost efficiency . . .  
great penetration  
**RAYTHEON MICROTHERM**

A higher degree of absorption. Better ratio of cutaneous to muscle temperature. Effective production of active hyperemia. Precisely controlled application for large and small areas. Total elimination of pads, electrodes and danger of arcs. No contact between patient and directors.

Complete information or demonstration on any of  
these units will be arranged on request.

**Kray AND Radium**  
INDUSTRIES LIMITED

261 DAVENPORT ROAD, TORONTO 5

Also exclusive Canadian distributor for Keleket  
X-ray Equipment with sales and experienced  
service available from all our branches.

Moncton • Montreal • Winnipeg • Regina • Calgary • Edmonton • Vancouver

Your Treasurer would like to point out that expenditures for the past year exceeded income by \$2,275. There were some special items such as payment of both 1948 and 1949 Extra Mural expenses in the present year budget and a rise in the amount paid. Also refund of fees to members over 65 years of age and a few other items. Also the College anticipated the return from increased annual fees which could not come into force until the coming year and voted some increases in current costs and salaries. The increase in 1950 will just about square the account.

Your Treasurer wishes to point out that all office and administration expenses have steadily risen and to warn the College that we must not be too lenient on issuing of temporary permits which sometimes result in the full permit being paid elsewhere sometime later. It is expected that the increased fee will bring in about \$1,800 per year and with this your Treasurer has confidence the budget can be balanced in 1950.

T. H. Williams, M.D., C.M.,  
Treasurer.

### Auditors' Report

PRICE, WATERHOUSE & CO.  
Toronto General Trusts Building,  
Winnipeg, October 17, 1949.

The College of Physicians and Surgeons of Manitoba,  
Winnipeg, Manitoba.

Dear Sirs:

In accordance with the instructions of your Registrar, we have made an examination of the books and records of The College of Physicians and Surgeons of Manitoba for the year ending September 30, 1949, and for your information we submit the following statements:

#### Gordon Bell Memorial Fund:

Statement of the Fund	EXHIBIT I
September 30, 1949	
Statement of Changes in the Fund During	EXHIBIT IA
the year ending September 30, 1949	
Statement of Cash Receipts and	
Disbursements For the Year	
ending September 30, 1949	EXHIBIT IB

#### The Investment Account:

Statement of the Fund	EXHIBIT II
September 30, 1949	
Statement of Changes in the Fund During	EXHIBIT IIA
the year ending September 30, 1949	
Statement of Cash Receipts and	
Disbursements For the Year	
ending September 30, 1949	EXHIBIT IIB

#### Current Account:

Summary of Cash Receipts and	EXHIBIT III
Disbursements For the Year	
ending September 30, 1949	EXHIBIT IIIA
Statement of Cash Receipts For	
the Year ending September 30, 1949	EXHIBIT IIIB
Statement of Cash Disbursements For	
the Year ending September 30, 1949	EXHIBIT IIIC

In connection with these statements and our examination of the records we would offer the following comments:

#### Dominion of Canada Bonds:

We attended at the safety deposit vaults of The Bank of Toronto on October 3, 1949, and, in conjunction with Dr. T. H. Williams and Dr. M. T. Macfarland, examined the Dominion of Canada bonds of a par value of \$25,000.00 as shown under the heading of Gordon Bell Memorial Fund and Bonds of a par value of \$56,000.00 as shown under the heading of Investment Account. All of the bonds examined by us were seen to be fully registered in the name of The College of Physicians and Surgeons of Manitoba.

Bonds acquired during the year were purchased on the general authority approved by Council in 1947 and this authority was extended by Council in 1948. We have examined bank advices covering the respective transactions,

The purchases, during the year, of bonds in the Gordon Bell Memorial Fund, have not, however, been approved by the Trustees of that fund. Particulars of the relative transactions together with the opening and closing balances of the investments are shown below:

<b>Gordon Bell Memorial Fund:</b>	
Investments September 30, 1948	\$23,000.00
<b>Add—Purchase of Dominion of Canada</b>	
3 per cent Victory Loan bonds due	
September 1, 1966, of a par value of	
\$22,000.00—at cost	\$22,147.50
<b>Less—Premium on bonds written off</b>	
to expense	147.50
	22,000.00

<b>Deduct—Proceeds of Dominion of Canada 4½ per</b>	
cent Conversion Loan bonds due November 1,	
1958, of a par value of \$20,000.00—called for	
redemption November 1, 1948, at par	20,000.00
Investments September 30, 1949, per Exhibit I	\$25,000.00

<b>Investment Trust Account:</b>	
Investments September 30, 1948	\$54,000.00
<b>Add—Purchase of Dominion of Canada</b>	
3 per cent Victory Loan bonds due	
September 1, 1966, of a par value of	
\$2,000.00—at cost	\$ 2,022.50
<b>Less—Premium on bonds written off</b>	
to expense	22.50
	2,000.00
Investments September 30, 1949, per Exhibit II	\$56,000.00

It should be mentioned that, in accordance with the minutes of the Council Meeting of October 15, 1947, all bonds are to be carried on the books at par value.

#### Funds on Deposit:

The balances on deposit with The Bank of Toronto at September 30, 1949, in the two savings accounts and the current account have been reconciled with a certificate received by us direct from the bank.

#### Receipts and Disbursements:

With the exception of the funds on deposit in the current account, which account is non-interest bearing, we have seen that interest has been received on all investments and funds. In the case of the current account we have checked the stubs of receipts issued by the Registrar in connection with registration fees, certificates, annual fees, etc., against the book entries. As a test to ascertain that annual fees received had been properly accounted for we traced the amounts shown in the cash book to the relative members' register cards in respect of all city members. Subsequently we agreed the names on those register cards with a list of members prepared by the College as at September 15, 1949, and at the same time listed any fees which were in arrears as at September 30, 1949: this list of arrears was agreed with a memorandum record maintained by your Registrar.

In regards to payments from the Gordon Bell Memorial Fund and the Investment Account, we have examined bank advices and have satisfied ourselves as to the propriety of such disbursements.

With regard to disbursements from the current account we have examined the paid cheques and relative approved vouchers in respect of the items appearing in the books. As the statements submitted relate only to cash receipts and disbursements, we have not gone into the question of any arrears in respect of fees or liabilities outstanding as at September 30, 1949, except to the extent mentioned previously in this report in regard to fees.

It will be observed that the expenses of meetings of Council and committees are somewhat greater than a year ago. This increase arises from changes in the by-laws, in May, 1949, which authorized increased fees and travelling allowances for attendance at meetings. The new by-laws also authorized fees and travelling allowances to be paid for attendance at all committee meetings instead of only certain meetings as was the case in the past.

The amount of \$43.88 paid to the Manitoba Medical Association in regard to expenses of extra-mural lectures is considerably larger than the expenditure a year ago. The reason for the increase is that the amount paid this year actually covers two fiscal periods, 1947-48 and 1948-49 in amounts of \$243.88 and \$300.00 respectively, whereas the amount of \$110.80 shown in the accounts of last year was in respect of the fiscal period ending September 30, 1947.

We would again point out that Miss Allison is not covered by the fidelity bond maintained by the College.

# a completely new approach to cough relief



The antispasmodic and decongestant action of **BENYLIN EXPECTORANT** combats cough, relaxes the bronchial tree, diminishes bronchial congestion and alleviates nasal stuffiness, sneezing and lacrimation. Containing no narcotics, **BENYLIN EXPECTORANT** combines Benadryl® hydrochloride, 10 mg. per teaspoonful, with other remedial agents for safe, effective control of coughs due to colds as well as those of allergic origin.

## BENYLIN® EXPECTORANT

promotes liquefaction and removal of mucous secretions from the respiratory tract. The demulcent action of its vehicle soothes irritated mucosa. Acceptable alike to children and adults, its pleasant, mildly tart taste avoids the objections to cloying, overly-sweet preparations.

**DOSAGE:** One or two teaspoonfuls every two to three hours, as soon as possible following appearance of symptoms. Children,  $\frac{1}{2}$  to one teaspoonful every three hours.

**BENYLIN EXPECTORANT** contains in each fluid ounce:

Benadryl Hydrochloride .....	80 mg. (diphenhydramine hydrochloride, P. D. & Co.)
Ammonium Chloride .....	12 gr.
Sodium Citrate .....	5 gr.
Chloroform .....	2 gr.
Menthol .....	1/10 gr.

**BENYLIN EXPECTORANT** is supplied in 16-oz.,  $\frac{1}{2}$  and 1 gal. bottles.

PARKE, DAVIS & CO., LTD. • WALKERVILLE, ONTARIO



We shall be pleased to furnish you with any additional information you may desire in regard to the attached accounts.

Yours very truly,  
Price, Waterhouse & Co.

## EXHIBIT I.

**The College of Physicians and Surgeons of Manitoba**  
**Gordon Bell Memorial Fund**  
**Statement of the Fund, September 30, 1949**

## INVESTMENTS

Dominion of Canada bonds fully registered in the name of The College of Physicians and Surgeons of Manitoba and carried at par:

3% Victory loan due 1951, 1 bond of \$500.00 numbered K4 2020847	\$ 500.00
3% Victory loan due 1957, 1 bond of \$1,000.00 numbered L4 M39923	1,000.00
3% Victory loan due 1966, 4 bonds of \$5,000.00 each numbered P7 V14618-19-20-21,	
3 bonds of \$1,000.00 each numbered P7 M56243, M129375-6 and 1 bond of \$5,000.00 numbered P7 Z73629	23,500.00

Funds on deposit with The Bank of Toronto— per Exhibit IB	\$25,000.00
Amount of the fund, September 30, 1949—	817.48

per Exhibit IA	\$25,817.48
----------------	-------------

## EXHIBIT IA.

**The College of Physicians and Surgeons of Manitoba**  
**Gordon Bell Memorial Fund**  
**Statement of Changes in the Fund During the Year Ending September 30, 1949**

Amount of the fund, October 1, 1948 ..... \$24,898.98

## REVENUE RECEIPTS:

Interest on Dominion of Canada bonds	\$ 1,035.04
Interest on funds on deposit in The Bank of Toronto	30.96

DEDUCT—Premium paid on Dominion of Canada bonds purchased during the year—written off	\$25,964.98
Amount of the fund, September 30, 1949—carried to Exhibit I	147.50

Amount of the fund, September 30, 1949—carried to Exhibit I	\$25,817.48
---	-------------

## EXHIBIT IB.

**The College of Physicians and Surgeons of Manitoba**  
**Gordon Bell Memorial Fund**  
**Statement of Cash Receipts and Disbursements For the Year Ending September 30, 1949**

Balance of uninvested funds, October 1, 1948 ..... \$ 1,898.98

## CASH RECEIPTS

Redemption of Dominion of Canada 4 1/2% Conversion loan bonds due November 1, 1958—called for redemption November 1, 1948, at par	20,000.00
Interest on Dominion of Canada bonds	\$ 1,170.00

Less—Accrued interest on bonds purchased	134.96
Interest on uninvested funds	30.96

Interest on uninvested funds	1,066.00
	\$22,964.98

## CASH DISBURSEMENTS

Purchase of Dominion of Canada 3% Victory Loan bonds due September 1, 1966, of a par value of \$22,000.00	22,147.50
---	-----------

Uninvested funds, September 30, 1949—carried to Exhibit I	\$ 817.48
---	-----------

## EXHIBIT II.

**The College of Physicians and Surgeons of Manitoba**  
**The Investment Account**  
**Statement of the Fund, September 30, 1949**

## INVESTMENTS

Dominion of Canada bonds fully registered in the name of The College of Physicians and Surgeons of Manitoba and carried at par:

3% Victory loan due 1957, 1 bond of \$500.00 numbered L4 Z45631	\$ 500.00
3% Victory loan due 1959, 4 bonds of \$10,000.00 each numbered L7 X04926-7-8-9 and	

1 bond of \$5,000.00 numbered L7 V05687	45,000.00
3% Victory loan due 1966, 1 bond of \$5,000.00 numbered P7 V13695,	
5 bonds of \$1,000.00 each numbered P7 M103575-6-7, M129373-4 and 1 bond of \$500.00 numbered P7 Z72097	10,500.00
	\$56,000.00

Funds on deposit with The Bank of Toronto—

per Exhibit IB ..... 961.44

Amount of the fund, September 30, 1949—

per Exhibit IIA ..... \$56,961.44

## EXHIBIT IIA.

**The College of Physicians and Surgeons of Manitoba**  
**The Investment Account**  
**Statement of Changes in the Fund During the Year Ending September 30, 1949**

Amount of the fund, October 1, 1948 ..... \$55,331.42

## REVENUE RECEIPTS:

Interest on Dominion of Canada bonds	\$ 1,633.40
Interest on funds on deposit in The Bank of Toronto	19.12

1,652.52

\$56,983.94

DEDUCT—Premium paid on Dominion of Canada bonds purchased during the year—written off ..... 22.50

Amount of the fund, September 30, 1949—

carried to Exhibit II ..... \$56,961.44

## EXHIBIT IIB.

**The College of Physicians and Surgeons of Manitoba**  
**The Investment Account**  
**Statement of Cash Receipts and Disbursements For the Year Ending September 30, 1949**

Balance of uninvested funds, October 1, 1948 ..... \$ 1,331.42

## CASH RECEIPTS:

Interest on Dominion of Canada bonds	\$ 1,650.00
Less—Accrued interest on bonds purchased	16.60

\$ 1,633.40

Interest on uninvested funds	19.12
------------------------------	-------

1,652.52

\$ 2,983.94

## CASH DISBURSEMENTS:

Purchase of Dominion of Canada 3% Victory loan bonds due September 1, 1966, of a par value of \$2,000.00	2,022.50
--	----------

Uninvested funds, September 30, 1949—

carried to Exhibit II ..... \$ 961.44

## EXHIBIT III.

**The College of Physicians and Surgeons of Manitoba**  
**Current Account**  
**Summary of Cash Receipts and Disbursements For the Year Ending September 30, 1949**

Cash in The Bank of Toronto as per books—

October 1, 1948 ..... \$ 4,485.27

Cash receipts—Per Exhibit IIIA ..... 6,704.00

\$11,189.27

Cash disbursements—Per Exhibit IIIB ..... 9,502.97

Cash in The Bank of Toronto as per books—

September 30, 1949 ..... \$ 1,686.30

## Reconciliation of Cash in The Bank of Toronto as Shown By Bank Statement with Amount as Shown by the Books

Cash in The Bank of Toronto as per bank statement

\$ 2,225.05

Deduct—Outstanding cheques:

Dr. D. B. Best ..... \$ 10.00

Dr. J. M. Lederman ..... 10.00

Dr. C. B. Stewart ..... 10.00

Manitoba Medical Association ..... 200.00

Manitoba Medical Association ..... 8.75

Manitoba Medical Association ..... 300.00

538.75

Cash in The Bank of Toronto as per books—

September 30, 1949 ..... \$ 1,686.30

## EXHIBIT IIIA.

**The College of Physicians and Surgeons of Manitoba**  
**Current Account**  
**Statement of Cash Receipts for the Year Ending**  
**September 30, 1949**

Registration fees	\$ 4,630.00
Temporary licenses	165.00
Certificates:	
M. C. C.	\$ 315.00
G. M. C.	55.00
	370.00
Annual fees	1,328.00
Medical students registration fees	70.00
Sales of Mailing lists	131.00
Miscellaneous income	10.00
Total receipts—carried to Exhibit III	\$ 6,704.00

## EXHIBIT IIIB.

**The College of Physicians and Surgeons of Manitoba**  
**Current Account**  
**Statement of Cash Disbursements**  
**For the Year Ending September 30, 1949**

Salaries:	
Registrar—Dr. M. T. Macfarland	\$ 2,400.00
Treasurer—Dr. T. H. Williams	500.00
	\$ 2,900.00
Meetings:	
Annual, October, 1948	\$ 264.80
Special, May, 1949	708.60
Executive Committee	42.70
Special Committees	267.25
	1,283.35
Grant to Medical Library	750.00
Legal fees	95.00
Amount paid to Manitoba Medical Association in respect of office rental and secretarial services, etc.	2,325.00
Janitor's services—annual and special meetings	12.60
Insurance premiums	22.50
Auditors' fee	125.00
Printing and stationery	822.67
Postage	180.48
Expenses of President re meeting in Toronto	35.00
Expenses of Registrar re meeting in Saskatoon	46.50
Miscellaneous office expenses	46.38
Furniture and office equipment	83.45
Exchange on cheques	5.16
General expenses	9.00
Manitoba Medical Association re expenses of extra-mural lectures	543.88
Registration fees refunded	180.00
Annual fees refunded	32.00
Temporary license—refund of overpayment	5.00
Total disbursements—carried to Exhibit III	\$ 9,502.97

**Motion:** "THAT the reports of the Treasurer and Auditors be adopted." Carried.

Dr. Williams stated that the auditors pointed out that Miss \_\_\_\_\_ was not covered by the fidelity bond maintained by the College. The Treasurer and Registrar are bonded, but since Miss \_\_\_\_\_ handles the funds, it was felt that she should be bonded also. He explained that since the Registrar took over the combined duties of Executive Secretary and Registrar, the C.P. & S. has been paying to the M.M.A. the sum of \$200.00 per month for secretarial and office expenses, and the M.M.A. have been paying Miss \_\_\_\_\_ for her services.

Dr. Macfarland stated the M.M.A. were making arrangements to bond all the employees in the combined offices.

**Motion:** "THAT the M.M.A. be requested to bond Miss \_\_\_\_\_, since she handles considerable funds of the C.P. & S., and the C.P. & S. are paying for office and secretarial services." Carried.

The Treasurer explained that in 1947 and 1948

the Council empowered the Treasurer to invest, from accumulated funds in the Investment Trust and Gordon Bell Memorial Account, in additional bonds. A letter has been sent to the Trustees of the Gordon Bell Memorial Account requesting their consent to the 1947 action, and will be done for 1948.

The Treasurer considered that a copy of the motion be forwarded to the Trustees reiterating the authority of the Treasurer, in consultation with the Finance Committee, to buy bonds from cash balances in the Gordon Bell Memorial Account, requesting their consent.

**Motion:** "THAT, on advice from the Finance Committee, the College Treasurer be authorized to purchase Dominion of Canada fully registered bonds from accrued cash balances on hand in the Investment Trust or Gordon Bell Memorial Accounts when such balances are deemed by them surplus to requirements for the current year." Carried.

#### 4. Reports of Standing Committees and their consideration.

(a) **Executive Committee**

No meeting (since May meeting of Council).

(b) **Registration Committee**

Dr. Best reported that there had been six meetings of the Registration Committee held during the year. Copies of the minutes were circulated to all members of Council prior to October 1, 1949.

**Motion:** "THAT the minutes of the Registration Committee meetings held during the year be accepted as having been read." Carried.

The Registrar requested the opinion of Council as to whether efforts to provide any applicant with Enabling Certificate, Certificate of Licence, or Certificate of Registration, should be on the undertaking that the applicant would subsequently become fully registered with the C.P. & S. of Manitoba. He drew attention to the fact that many applicants express no desire to practise in this Province but wish to secure recognition here in order that they may become licensed by reciprocity in the British Isles and one of the other Commonwealth countries. He stated that the College was receiving increasing numbers of applications from China seeking Enabling Certificates so that they may write the examinations of the Medical Council of Canada, become registered in Great Britain and go to Hong Kong, and also graduates from the College of Medical Evangelists, Loma Linda, California.

Dr. Williams stated that he talked with an eminent educationalist when he was in Chicago, and was informed that the College of Medical Evangelists is one of the best in the United States, and in the All-American examinations, they are always at the top.

Dr. ..... explained that if a doctor obtains an Enabling Certificate from this Province and obtains an L.M.C.C., he may apply for registration to any one of the 6 provinces that have reciprocity with Great Britain, some of which have a lower registration fee than Manitoba.

Dr. ..... inquired whether Great Britain was in favor of this reciprocal registration.

Dr. ..... stated that if the applicant has the qualifications for obtaining an Enabling Certificate the Registration Committee cannot very well refuse, but they should inquire concerning the purpose for which the certificate is being used.

(c) **Education Committee**

No meeting.

(d) **Finance Committee**

The Finance Committee of the College of Physicians and Surgeons have been requested, as per minute of May 18th meeting, "That the question of means of employing the income from invested C.P. & S. funds be passed to the Finance Committee for study and report to the October meeting of Council." Your committee wishes to report as follows:

(1) The committee do not favour the expending of principal presently invested in The Investment Trust Account in Dominion of Canada 3% bonds except in the event of an emergency and for the good of the whole profession.

(2) There are, however, expenses incurred annually for the good of the whole C.P. & S. membership such as the Extra Mural activities of the Manitoba Medical Association which we have from time to time subsidized and which we wish to see continued and expanded. Also the Medical Library serves the C.P. & S. members generally and depends upon us for a contribution of \$750.00 annually. These two projects we consider can well be a charge upon the interest earnings of the Investment Trust Account. We therefore wish to recommend as follows:

**Motion:** "THAT the amount available for meeting Extra Mural expenses incurred by meetings arranged by the Manitoba Medical Association be increased to a maximum of \$500.00 annually, and that this be a charge on the Investment Trust Account interest earnings." Carried.

**Motion:** "THAT the sum voted by the Council annually to the Medical Library be paid from the interest earnings of the Investment Trust Account." Carried.

T. H. Williams, M.D., C.M.  
C. S. Crawford, M.D.

**Motion:** "THAT the resolutions of the Finance Committee be approved. Carried.

(e) **Legislative Committee**

No meeting.

(f) **Library Committee**

The library statistics, as prepared by Miss Ruth Monk, Librarian, were presented:

**Statistics, 1948-49**

**Contents of Library**

Books, bound and unbound serials (periodicals): The approximate number of volumes in the library, not counting the duplicate files of serials: 1948-49, 16,757 volumes; 1947-48, 16,093 volumes. Progress, 504 volumes (net gain). Increase in total number of volumes, 31.31%.

Serials (periodicals) titles currently received:

	1948-49	1947-48	Progress
Titles	314	312	Increase of
Duplicates	6	5	3 Titles
	320	317	

Volumes added to the Library by the College of Physicians and Surgeons grant, 151 Volumes. This is an increase of 32 volumes, or 26.89% over 1947-48, or 35.03% of all purchases. And 27.79% of the total 543 accessions.

**Circulation Statistics—Borrowers and Loans**

Borrowers—Physicians—City and Medical Faculty (Winnipeg and Suburbs).

Number of registered physicians	522
Individual borrowers	246

or

Percentage of number registered	47.12%
Decrease of individual borrowers	13

Total items loaned—books and journals, 3,578, or 38.07% of all loans. A decrease of 941 items or 20.82% from 1947-48.

Borrowers—Physicians—Rural Manitoba

Number of registered physicians	220
Individual borrowers	31

or

Percentage of number registered	14.09%
Increase of individual borrowers	6

Total items loaned—books and journals, 741, an increase of 32 items, or 15.31% from 1947-48.

Registered Physicians—Winnipeg

Medical Faculty	133
Non-faculty	389

522

Faculty among above borrowing, 86 or 16.47%;

Non-faculty among above borrowing, 160 or 31.07%; (of the 522 registered physicians).

September 28, 1949.

**Motion:** "THAT the report of the Library Committee be adopted." Carried.

**Re Grant to Medical Library Committee**

A letter was presented from the Chairman, Medical Library Committee, requesting the usual grant.

**Motion:** "THAT the College of Physicians and Surgeons of Manitoba grant to the Medical Library Committee, the sum of Seven Hundred and Fifty Dollars (\$750.00) for the year 1949-50." Carried.

(g) **Discipline Committee**

The committee on discipline has not met since last meeting of the Council, this being election year.

there is always the possibility that the members of committees may not return, hence do not wish to submit reports after they are removed from Council.

It might be stated that the more one studies this problem the more complicated it becomes. There are many aspects to the question of discipline, having regard, to the question in hand—namely discipline for minor acts of misbehaviour among members of the College of Physicians and Surgeons. These acts of misbehaviour at times seem too trivial to trouble with, but on the other, have a rather bad reaction on the public, as the laity do like to have the doctors to talk about in a critical way.

Your committee will have a full report on this question for the next meeting, setting out what the committee consider to be acts of minor misbehaviour and the remedial measures to be taken by Council to correct these in the most efficient manner.

A. A. Alford, M.D.,  
Chairman.

Dr. Alford reported that the Discipline Committee had not met since May. He stated that reports concerning disciplinary proceedings had been received from various Colleges across Canada, and Alberta seems to be the only province to insert a list of minor offences into the Act. The majority of Councils seem to deal with each case individually. He thought that the matter of discipline seemed to be one of ethics, between two medical men, or between patients and medical men, and the majority of complaints were hearsay, or verbal. Dr. Alford considered that rather than make any drastic changes in the Medical Act, a letter or interview with someone of authority would be better.

**Motion:** "THAT the report of the Discipline Committee be adopted." Carried.

Dr. Johnson stated that the only action this Council may take would be to reprimand in written or verbal form or erase from the Register, and reinstatement takes at least 6 months. He thought the Council should have wider scope. He said it was possible that certain misdemeanors could come to our attention and could not be dealt with adequately since a reprimand might not be sufficient, and yet erasure might be too drastic.

Considerable discussion ensued.

**Motion:** "THAT the Discipline Committee look into the matter of disciplinary proceedings to draw up a system of suspension and/or fines to cover misdemeanors which require more than reprimand and less than erasure." Carried.

**Dr.**

The Registrar reported that Dr. \_\_\_\_\_ had written to the College, under date of May 2, 1949, advising that all his outstanding reports with the

Workmen's Compensation Board had been cleared up, and gave his assurance that in future all reports would be submitted in due time. He stated that on October 11th, he had verbal communication with the Chief Medical Officer, W. C. B., that several of Dr. \_\_\_\_\_ reports were once more outstanding, and the workmen concerned were not receiving any compensation. The Registrar reported that he advised Dr. \_\_\_\_\_ by letter that the Council meeting would be held on October 19th, and invited him to attend to explain why his undertaking was allowed to lapse.

Dr. \_\_\_\_\_ pointed out that if this were referred to the Discipline Committee, it would mean no action for 6 months. He suggested the Registrar, on advice of the Council, should write to Dr. \_\_\_\_\_ to the effect that unless this is cleared up, we will recommend to the W.C.B. that he be struck off their list.

**Motion:** "THAT the Registrar, on advice of the Council, write to Dr. \_\_\_\_\_ to the effect that unless his Workmen's Compensation reports are cleared up, we will recommend to the Workmen's Compensation Board that he be struck off their list." Carried.

#### Canadian Medical Protective Association

The Registrar presented a letter from the Secretary-Treasurer of the C.M.P.A., stating that they require 4 physicians to act on the Provincial Executive in the Province of Manitoba, and requesting a list of 8 to 10 names to choose from. This was considered to be a matter for the Liaison Committee.

**Motion:** "THAT the choosing of a list of names to be forwarded to the Canadian Medical Protective Association be referred to the Liaison Committee." Carried.

#### (h) Taxing Committee.

The Registrar explained that he had received a complaint involving a bill in which the collection agency had taken action. He stated he had forwarded all relevant documents to Dr. C. W. Wiebe, Chairman of the Taxing Committee, but since he was not present the matter would have to be deferred.

#### W.C.B. Fee Taxing Committee

In Dr. C. W. Wiebe's absence, the Registrar read the following report:

According to the minutes of the meeting of Executive of M.M.A., May 18, 1949, the Fee Taxing Committee of C.P. & S. was to take on the duties of the Fee Taxing Committee of W.C.B. for a period of six months on trial; composition of the Committee to be two rural members and one city member (two alternates to be appointed in case rural members were unable to attend). At the end of six months' period Council to report to Annual Meeting of C.P. & S. in October and also to M.M.A. Executive

Following the decision a meeting of the C.P. & S. Fee Taxing Committee was called in June, 1949, but it never convened due to intervening holidays and some practical difficulties entailed in the carrying out of the above resolution. The Fee Taxing Committee of the C.P. & S. is a sort of Court of Appeal for patients who are overcharged, or wrongly charged, by their medical physician. It is true any physician or surgeon can also appeal to the Fee Taxing Committee but usually the patient is the appellant and the doctor the defendant. In the case of the Fee Taxing Committee of the W.C.B., the doctor is usually the appellant and the W.C.B. Commission the defendant. Actually the W.C.B. Commission is the highest court and legally does not have to change its decision on anybody's appeal. Furthermore, many of the cases which are dealt with by the Commission are treated by specialists and are somewhat difficult to evaluate by a general practitioner or internist. Thus the function of the Fee Taxing Committee of the W.C.B. is somewhat different to that of the Fee Taxing Committee of the C.P. & S.

In addition, according to constitution of C.P. & S., the Council cannot appoint members to the Fee Taxing Committee who are not members of Council, and, consequently, cannot pay these non-Council members of a committee.

As Chairman of the Fee Taxing Committee of the C.P. & S., I would like to recommend that this Committee be relieved of the duties of the Fee Taxing for the W.C.B. and that the M.M.A. take over the appointment of a Fee Taxing Committee for the W.C.B. Such a Committee could either work without pay or the C.P. & S. could make a grant to the M.M.A. for the purpose of paying the Fee Taxing Committee.

C. W. Wiebe, M.D.,  
Chairman.

The Registrar reported that a letter in agreement with the above was received from the M.M.A.

**Motion:** "THAT the Taxing Committee be relieved of fee taxing for W.C.B., and that Council make a grant to the M.M.A. for the purpose of paying the Fee Taxing Committee, W.C.B." Carried.

Dr. Macfarland stated that the tentative fee mentioned at the May meeting of Council was \$5.00 a meeting for 3 members meeting once monthly.

**Motion:** "THAT the C.P. & S. make a grant to the M.M.A. not exceeding the sum of One Hundred and Eighty Dollars (\$180.00) annually, for the payment of members of the Fee Taxing Committee, W.C.B." Carried.



## Readily Digestible Milk Modifiers for Infant Feeding

Crown Brand and Lily White Corn Syrups are well known to the medical profession as a thoroughly safe and satisfactory carbohydrate for use as a milk modifier in the bottle feeding of infants.

These pure corn syrups can be readily digested and do not irritate the delicate intestinal tract of the infant.

Either may be used as an adjunct to any milk formulae.

Crown Brand and Lily White Corn Syrups are produced under the most exacting hygienic conditions by the oldest and most experienced refiners of corn syrups in Canada, an assurance of their absolute purity.

### "CROWN BRAND" and "LILY WHITE"

#### CORN SYRUPS

Manufactured by

THE CANADA STARCH COMPANY LIMITED  
Montreal and Toronto

**For Doctors Only**—A Convenient pocket calculator, with varied infant feeding formulae employing these two famous corn syrups . . . a scientific treatise in book form for infant feeding . . . and infant formula pads, are available on request, also an interesting booklet on prenatal care. Kindly clip the coupon and this material will be mailed to you immediately.

THE CANADA STARCH CO. Limited  
Montreal

Please send me

- FEEDING CALCULATOR.
- Book "CORN SYRUP FOR INFANT FEEDING."
- INFANT FORMULA PADS.
- Book "THE EXPECTANT MOTHER."
- Book "DEXTROSOL."

Name \_\_\_\_\_

Address \_\_\_\_\_

# COUGH CONTROL

The expectorants in Scilexol E.B.S. increase the mobility of respiratory tract fluids, aiding in their elimination.



# SCILEXOL

Coughing spasms can be controlled by giving Scilexol E.B.S. with the following sedatives.\*

1 Codeine	- - - - -	1 gr. per ounce
2 Methadon	- - - - -	10 mg. per ounce
3 Tincture Opium Camphorated	- - - - -	80 min. per ounce

\*Narcotics Order Required

THE E.B. SHUTTLEWORTH CHEMICAL CO., LTD. TORONTO, CANADA

Representative: Mr. G. A. Roddick, 902 Banning St., Winnipeg

**Department of Health and Public Welfare**  
**Comparisons Communicable Diseases — Manitoba (Whites and Indians)**

DISEASES	1949		1948	
	Jan. 1 to Jan. 28, '50	Dec. 4 to Dec. 31, '49	Jan. 2 to Jan. 29, '49	Nov. 28 to Dec. 31, '48
Anterior Poliomyelitis	0	2	0	1
Chickenpox	172	207	160	366
Diphtheria	2	0	2	9
Diphtheria Carriers	0	0	0	0
Dysentery—Amoebic	0	0	0	0
Dysentery—Bacillary	0	4	0	0
Erysipelas	3	4	3	6
Encephalitis	0	1	0	0
Influenza	2	18	5	9
Measles	147	253	350	521
Measles—German	0	2	5	2
Meningococcal Meningitis	2	0	1	0
Mumps	26	11	148	248
Ophthalmnia Neonatorum	0	0	0	0
Pneumonia—Lobar	4	23	5	14
Puerperal Fever	0	0	0	0
Scarlet Fever	28	52	16	25
Septic Sore Throat	5	4	0	7
Smallpox	0	0	0	0
Tetanus	0	0	0	0
Trachoma	0	0	0	1
Tuberculosis	39	85	14	66
Typhoid Fever	0	0	0	0
Typhoid Paratyphoid	0	0	0	0
Typhoid Carriers	0	0	0	0
Undulant Fever	0	3	0	0
Whooping Cough	5	4	4	11
Gonorrhoea	97	87	97	143
Syphilis	24	29	39	61
Diarrhoea and Enteritis, under 1 yr.	1	11	5	10

For Four-Week Period, January 1st to January 28th, 1950

DISEASES	*779,000 Manitoba	*861,000 Saskatchewan	*3,825,000 Ontario	*2,962,000 Minnesota
(White Cases Only)				
*Approximate population.				
Anterior Poliomyelitis		1	11	
Chickenpox	172	274	1767	
Diarrhoea and Enteritis	1	1	—	—
Diphtheria	2	—	11	16
Erysipelas	3	—	3	—
Infectious Jaundice	—	—	33	—
Influenza	2	—	52	—
Measles	148	335	770	192
Measles, German	—	86	416	—
Meningitis Meningococcal	2	—	4	9
Mumps	26	87	2314	—
Pneumonia, Lobar	4	—	—	—
Scarlet Fever	28	19	159	87
Septic Sore Throat	5	—	7	13
Tularaemia	—	—	1	—
Tuberculosis	39	27	114	52
Typhoid Fever	—	—	2	—
Typhoid Fever Carrier	—	—	1	—
Undulant Fever	—	—	2	14
Whooping Cough	5	29	191	83
Gonorrhoea	97	—	286	—
Syphilis	24	—	115	—
Dysentery, Bacillary	—	—	6	4

This is the first four-weekly report for 1950 and the figures which stand out are chickenpox, measles, mumps, scarlet fever, tuberculosis and gonorrhoea. Both chickenpox and measles have been epidemic in certain parts of the province.

**Scarlet Fever** has broken out in several places but fortunately is very mild. In fact it is so mild in many cases that the rash is slight and fleeting and in some may not be seen at all. All cases may spread the infection and it must be remembered that there is no such thing as scarlatina—it is all scarlet fever.

**Gonorrhoea** remains at about the same level but syphilis is decreasing.

**DEATHS FROM REPORTABLE DISEASES**  
**1949 Registrations Received from December 28th to**  
**February 14th, 1950**

**Urban**—Cancer, 18; Pneumonia, Lobar (108, 107, 109), 1; Pneumonia (other forms), 6; Syphilis, 2; Tuberculosis, 3. Other deaths under 1 year, 15. Other deaths over 1 year, 110. Stillbirths, 9. Total, 134.

**Rural**—Cancer, 21; Influenza, 2; Pneumonia, Lobar (108, 107, 109), 1; Pneumonia (other forms), 8; Syphilis, 1; Tuberculosis, 3; Diarrhoea and Enteritis, 3. Other deaths under 1 year, 8. Other deaths over 1 year, 80. Stillbirths, 8. Total, 96.

**Indians**—Cancer, 1; Influenza, 5; Measles, 1; Pneumonia (other forms), 2; Tuberculosis, 6; Diarrhoea and Enteritis, 2. Other deaths under 1 year, 4. Other deaths over 1 year, 13. Stillbirths, 1. Total, 18.

**DEATHS FROM REPORTABLE DISEASES**

**January, 1950 Registrations Received up to February 14th**

**Urban**—Cancer, 46; Influenza, 2; Pneumonia of New-born, 1; Pneumonia, Lobar (108, 107, 109), 2; Pneumonia (other forms), 4; Syphilis, 1; Tuberculosis, 10; Late affects of infectious encephalitis, 2; Gastro-enteritis, 1. Other deaths under 1 year, 11. Other deaths over 1 year, 207. Stillbirths, 20. Total, 238.

**Rural**—Cancer, 15; Influenza, 2; Pneumonia of New-born, 1; Pneumonia (other forms), 7; Tuberculosis, 5; Dysentery, 2; Streptococcal sore throat, 1; Gastro-enteritis, 2. Other deaths under 1 year, 11. Other deaths over 1 year, 140. Stillbirths, 9. Total, 160.

**Indians**—Tuberculosis, 1; Dysentery, 1; Meningococcal infection, 1. Other deaths under 1 year, 1. Other deaths over 1 year, 4. Total, 5.